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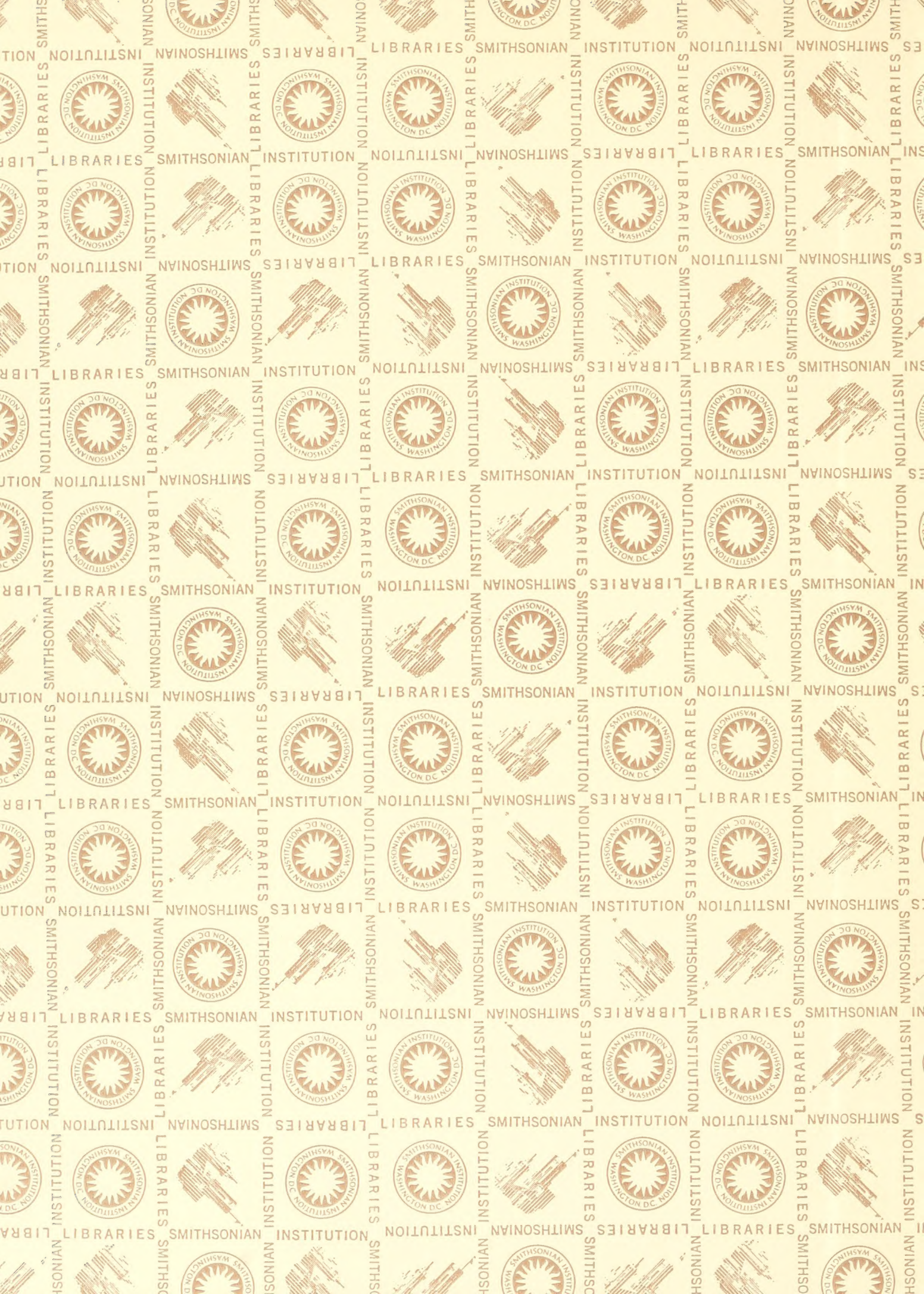
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CATALOGUE

OF THE

INDIAN DECAPOD CRUSTACEA

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PART I. BRACHYURA.

FASCICULUS II. THE INDIAN FRESH-WATER CRABS—POTAMONIDÆ.

BY

A. ALCOCK, C.I.E., M.B., LL.D., F.R.S.

LIEUTENANT-COLONEL INDIAN MEDICAL SERVICE (RETIRED), CORRESPONDING MEMBER OF THE ZOOLOGICAL SOCIETY; HONORARY MEMBER OF THE NETHERLAND ZOOLOGICAL SOCIETY AND OF THE CALIFORNIAN ACADEMY OF SCIENCES; SOMETIME SUPERINTENDENT OF THE INDIAN MUSEUM

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Vol. I., 1907

Part I.—Contributions to the Fauna of the Arabian Sea. Records of Hemiptera and Hymenoptera from the Himalayas. Further notes on Indian Fresh-water Entomostraca. The Fauna of Brackish Ponds at Port Canning, Lower Bengal, I—III. A Sporozoon from the Heart of a Cow. Miscellanea.

Part II.—Revision of the Oriental Stratiomyidæ. Description of an Oligochæte Worm allied to *Chætogaster*. The Fauna of Brackish Ponds at Port Canning, Lower Bengal, IV. Further Note on a Polyzoon from the Himalayas. Reports on a collection of Batrachia, Reptiles and Fish from Nepal and the Western Himalayas. The Fauna of Brackish Ponds at Port Canning, Lower Bengal, V. Notes on Oriental Diptera, I and II. Miscellanea.

Part III.—Report on the Marine Polyzoa in the collection of the Indian Museum. The Fauna of Brackish Ponds at Port Canning, Lower Bengal, VI. A third note on Earwigs (Dermaptera) in the Indian Museum, with the description of a new species. Notes on Oriental Diptera, III. Description of a new Snake from Nepal. Notes on a collection of marketable Fish from Akyab, with a description of a new species of *Lactarius*. Description of two fresh-water Oligochæte Worms from the Punjab. Notes on Phosphorescence in Marine Animals. Notes on the Rats of Dacca, Eastern Bengal. Notes on Fresh-water Sponges, I—IV. Miscellanea.

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Part V.—Revision of the Oriental Leptidæ. Revised and annotated Catalogue of Oriental Bombylidæ, with descriptions of new species

[*Continued on page 3 of Cover.*

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PREFACE

The first fascicle of the first part of this Catalogue of Indian Decapod Crustacea was published in 1901, and contained the Introduction and the *Brachyura Primigenia* or *Dromiacea*; this second fascicle of the first part includes the Cyclometopon Family of *Potamonidæ*, or Fresh-water Crabs, and is intended, like its precursors of the series, to be complete in itself.

This instalment, however, differs from its precursors in containing neither a Bibliography nor a full Table of Genera and Species, the chief reason for their omission being that Miss Rathbun's recent Memoir, "Les Crabes d'eau douce," published in *Nouvelles Archives du Muséum d'Histoire Naturelle*, Series 4, 1904-1906, renders them unnecessary.

ADDENDA ET CORRIGENDA

Page 34, line 30—*After* "POTAMON (POTAMON) ANDERSONIANUM var. RANGOONENSE," *delete* "(Fig. 41.)."

Page 35, line 11—*After* "POTAMON (POTAMON) ANDERSONIANUM var. ASPERATUM," *add* "(Fig. 67, Plate xiv.)."

Page 35, line 15—*After* "POTAMON (POTAMON) ANDERSONIANUM var. MANIPURENSE," *add* "(Fig. 68, Plate xiv.)."

Page 35, line 20—*After* "POTAMON (POTAMON) ANDERSONIANUM var. TRITUM," *add* "(Fig. 69, Plate xiv.)."

Page 35, line 25—*After* "POTAMON (POTAMON) EDWARDSI Wood-Mason," *for* "(Fig 42)," *read* "(Fig. 43, Plate xiv.)."

Page 36, line 10—*After* POTAMON (POTAMON) EDWARDSI var. HIRTUM, *for* "(Fig. 43)," *read* "Fig. 42, Plate x.)."

Page 40, line 15—*After* "POTAMON (POTAMON) PEALIANUM var. ANTENNARIUM)," *add* "Fig. 70, Plate xiv.)."

Page 88, line 9—*After* "PARATELPHUSA (BARYTELPHUSA) GUERINI var. PLANATA," *add* "(Fig. 71, Plate xiv.)."

Page 88, line 22—*After* "PARATELPHUSA (BARYTELPHUSA) GUERINI var. POCOCKIANA," *add* "(Fig. 72, Plate xiv.)."

Page 111, line 14—"PARATELPHUSA (LIOTELPHUSA) LEVIS var. QUADRATA (Fig. 28.) Note that Fig. 28 is in Plate xiv., and not in proper sequence in Plate viii.

I. INTRODUCTION

The *Potamonidæ*, to give them their new patronymic, derived from an old generic name that was exhumed about twelve years ago—the *Thelpheusiens* and *Thelphusinæ* of Milne Edwards, the *Telphusinea* of Dana, the *Telphusidæ* of other days—are one of the families of Cyclometopon or Cancroid Crabs.

On pp. 27 and 28 of the first fascicle of the first part of this catalogue there will be found a scheme of classification of the crabs which shows the position of the *Cyclometopa*, as accepted and understood in this work; and I would further refer to a paper in the *Journal of the Asiatic Society of Bengal* for 1899, vol. lxviii., part ii., pp. 470-473, for the scheme of classification of the *Cyclometopa*, to which I propose still to adhere.

Both these schemes have recently been modified to a slight extent, and incidentally the good old terms *Cyclometopa* and *Catometopa* (to which at one time the *Potamonidæ* were referred) have disappeared; but modifications of this kind seem to me to be, like the manner of spelling Sam Weller's name, entirely a question of taste and fancy.

Of the five families—*Corystidæ*, *Cancridæ*, *Portunidæ*, *Xanthidæ*, and *Potamonidæ*—that constitute the tribe *Cyclometopa*, the nearest connexions of the *Potamonidæ* seem, from every point of view, to be the *Xanthidæ*.

The *Potamonidæ* have been variously arranged in subfamilies by different authors, but I am not prepared to accept any of the subdivisions hitherto proposed. This subject will be considered further on: for the present, it is enough to say that the *Potamonidæ* of the Oriental region can be grouped in two subfamilies, namely—(1) *Potamoninæ*, and (2) *Gecarcinucinæ* or *Paratelphusinæ*. The definitions of these subfamilies, and of the genera and subgenera assembled under each, will be found in the sequel. It is necessary, first, to say something of the habits of the *Potamonidæ*; of their geographical distribution, with special reference to the Oriental region; and of certain things that make both the identification and the grouping of the species of this family particularly difficult. As it will be necessary, in dealing with these matters, to refer to certain species by name, the initial proceeding must be to present a list of the Indian species included in the family. This list can not be

regarded as complete, seeing that there are large tracts of the country, such as Rajputana and the States of Central India, Hyderabad and Berar, the Central Provinces and the small States between them and Chota Nagpur, and, last of all, Mysore, where fresh-water crabs have been hardly touched by collectors. It is of course possible, that in such dry parts of the country as those first mentioned, fresh-water crabs may be scarce; but in the little-explored jungle tracts of the borders of Chota Nagpur and the Central Provinces they might be expected to be abundant.

Analytical List of Indian Potamonidæ

Genus I.—POTAMON

Subgenus i.—Potamon :—

1. *P. fluviatile*, var. *ibericum*, M. de B.
2. ,, var. *gedrosianum*, A. A.
3. ,, var. *monticola*, W.-M.
4. *P. koolooense*, Rathbun.
5. *P. atkinsonianum*, W.-M.
6. ,, var. *ventriosum*, A. A.
7. ,, var. *emphyseteum*, A. A.
8. ,, var. *ambivium*, A. A.
9. *P. bifarium*, A. A.
10. *P. andersonianum*, W.-M.
11. ,, var. *rangoonense*, Rathb.
12. ,, var. *asperatum*, A. A.
13. ,, var. *manipurense*, A. A.
14. ,, var. *tritum*, A. A.
15. *P. edwardsi*, W.-M.
16. ,, var. *hirtum*, A. A.
17. *P. hispidum*, W.-M.
18. *P. pealianum*, W.-M.
19. ,, var. *antennarium*, A. A.
20. *P. tumidum*, W.-M.
21. *P. turgidulum*, A. A.
22. *P.*(?) *tumidulum*, A. A.
23. *P. austenianum*, W.-M.
24. *P. simulum*, A. A.
25. *P. manii*, Rathb.
26. *P. pruinosum*, A. A.
27. *P. turgidulimanus*, A. A
28. *P. thagatense*, Rathb.
29. *Potamon* sp.

Subgenus ii.—Potamiscus :—

30. *P. sikkimense* (Rathb.).
31. ,, var. from Nepal.
32. *P. annandalii*, A. A.
    [*P.*(?) *tumidulum*, No. 22.]

Subgenus iii.—Geotelphusa :—

33. *P. adiatretum*, A. A.
34. *P.* prox. *adiatretum*.

Subgenus iv.—Acanthotelphusa :—

35. *P. dayanum* (W.-M.).
36. *P. wood-masoni* (Rathb.). (= "*Paratelphusa*" *edwardsi*, W.-M.).
37. *P. fungosum*, A. A.
38. *P. feæ* (de Man).
39. *P. crenuliferum* (W.-M.).
40. ,, var. *floccosum*, A. A.
41. *P. calvum*, A. A.
42. *P. martensi* (W.-M.).
43. *Potamon* (*Geotelphusa*) *enode*, Kingsley, said to occur in South India, is not represented in the collection.

Genus II.—PARATELPHUSA

Subgenus i.—Paratelphusa :—

1. *P. spinigera*, W.-M.
2. *P. trilobata*, A. A.
3. *P. blanfordi*, A. A.
4. *P. sinensis*, Edw.
5. *P. grayi*, A. A.

Subgenus ii.—Barytelphusa :—

6. *P. jacquemontii* (Rathb.).
7. *P. lamellifrons*, A. A.
8. *P. cunicularis* (Westw.).
9. *P.* prox. *cunicularis*.
10. *P. edentula*, A. A.
11. *P.* prox. *edentula*.
12. *P. napæa*, A. A.
13. *P. pulvinata*, A. A.
14. *P. guerini* (Edw.).
15. ,, var. *planata* (A. M. E.).
16. ,, var. *pocockiana* (Hend.).
17. *P. pollicaris*, A. A.
18. *P. lugubris* (W.-M.).
19. ,, var. *nigerrima*, A. A.
20. ,, var. *plauta*, A. A.
21. *P. falcidigitis*, A. A.
22. *P. harpax*, A. A.
23. *P. masoniana* (Hend.).

Subgenus iii.—Oziotelphusa :—

24. *P. hydrodromus* (Herbst).
25. „ var.
26. *P. bouvieri* (Rathb.).
27. *Paratelphusa* sp.

Subgenus iv.—Phricotelphusa :—

28. *P. callianira* (de Man).
29. *P.* sp. 1 prox. *callianira.*
30. *P.* sp. 2 prox. *callianira.*
31. *P. elegans* (de Man).
32. *P. gageii,* A. A.
33. *P. campestris,* A. A.
34. *P. carinifera* (de Man).

Subgenus v.—Liotelphusa :—

35. *P. levis* (W.-M.).
36. „ var.
37. „ var. *quadrata,* A. A.
38. *P. austrina,* A. A.
39. *Paratelphusa* sp.

Subgenus vi.—Globitelphusa :—

40. *P. bakeri,* A. A.
41. „ var. *cylindrus,* A. A.
42. *P. pistorica,* A. A.
43. *P. gubernatoris,* A. A.
44. *P. pilosipes,* A. A.
45. *P. fronto,* A. A.

Genus III.—GECARCINUCUS

Subgenus i.—Gecarcinucus :—

1. *G. jacquemontii,* Edw.
2. *G. edwardsi,* W.-M.

Subgenus ii.—Cylindrotelphusa :

3. *G. steniops* (W.-M.).

Habits.—The *Potamonidæ*, though a few species can also exist quite well on the one hand in brackish water and on the other hand in damp jungle, are typical inhabitants of fresh water. They are found in ponds, lakes, streams, rivers, and marshes; and though they flourish most at low or inconsiderable levels in the tropics, they extend into the warmer temperate regions, and are also quite common at considerable elevations in the torrid zone.

Among the Indian *Potamonidæ* we find examples of all these modes and stations of life. For instance, in the swamps of Lower Bengal, a very common species is *Paratelphusa spinigera*: in the rainy season it can be seen in any Calcutta tank, often reposing on the bank, half-immersed in the water: in the cold season it may be found in the jheels in swarms, half-buried in the mud: in the hot season, when the surface-waters dry up, it digs deep burrows to get down to the ground-water. The same species, *P. spinigera*, on the one hand ascends the Ganges and Jumna as far as Hardwar and Saharanpur, and the Jhelum valley to an elevation of 2000 feet, and on the other hand does not object to the brackish water of the Gangetic delta.

In the jungles of the Western Ghauts, up to a height of 4000 feet, more than one species, and in the neighbourhood of Darjeeling, at elevations of 5000 to 7000 feet, at least two species of these crabs may be met with, far from any collection of water, during and shortly after the rainy season.

In ponds in the plains of Southern India, where the temperature is never very low, *Paratelphusa hydrodromus* (= *Telphusa leschenaultii* of many authors) is common: in river-pools in Baluchistan, at an elevation of over 6000 feet, where the winter cold may be intense, varieties of *Potamon fluviatile* can find a living.

The eggs of *Potamonidæ* are comparatively large, and are not extremely

numerous in a batch. They are carried by the mother in the usual way of crabs, and, so far as is known, are hatched not as zoæas, but in a much more advanced stage, and the young stay in the mother's brood-pouch until they have attained the adult form and a considerable size.

Differentiation of Species and Varieties.—Owing to their frequent variability, the definition of species in this group is peculiarly difficult, and here, as everywhere, unanimity upon the species question seems beyond attainment.

As to the causes of variation, one may, without offence I hope, make the trite surmise, that in an assemblage of species many of which have a very considerable range of horizon and are moreover tied to a perpetually changing medium—for nothing can be much more inconstant than the conditions of a stream or of a pool of fresh water in the tropics—slight vicissitudes of existence, capable, however, of leaving their mark, may be unusually frequent.

In discussing the question of variation and the difficulties which it presents to the systematist, the easiest way will be to enumerate the "points" by which species among Indian *Potamonidæ* are judged, and then to consider the constancy of each point.

The points looked to by the systematist may be enumerated as follows, so far as Oriental species are concerned:—

1. *Carapace:* its shape, its breadth, its depth and dorsal convexity, and its surface sculpture and "areolation."

2. "*Cervical groove*": its course or curve; its depth, distinctness, and completeness.

3. *Front:* its breadth, its degree of declivity, and its shape.

4. *Orbit:* its shape, the size and sharpness of the external orbital angle, and the presence or absence of a gap between that angle and the lower border of the orbit.

5. *Antero-lateral borders of carapace:* their length, their curve or convexity, their sculpture, and the size of the lateral epibranchial tooth.

6. *Epigastric crests:* their size and distinctness, and their position with regard to the post-orbital crests and to the front.

7. *Post-orbital crests:* their sharpness and distinctness, their position with regard to the epigastric crests, their relation to the cervical groove, and their relation to the lateral epibranchial spine.

8. *Abdomen of adult male:* its general shape, and shape and breadth of the 6th and 7th segments.

9. *Antennal flagellum:* its degree of development.

10. *Mandibular palp:* form of the terminal segment, whether simple or cleft into two lobes.

11. *External maxillipeds:* length of their exopodite, presence or absence

of a flagellum to the exopodite, presence or absence of a longitudinal groove on the ventral surface of the ischium, and shape and breadth of merus.

12. *Chelipeds:* presence or absence of a subterminal spine on the upper border of the merus, and shape and gape of fingers.

13. *Legs:* length and degree of robustness, and length of dactyli.

My experience of the value of these points in dealing with Indian species is as follows:—

(1) *Carapace:* the shape and breadth vary with age and sex in the same species; the carapace tends to grow broader with age, especially in the male.

The amount of dorsal convexity is more constant; but Schenkel believes, and I am inclined to agree with him, that residence in the cold, well-aerated water of rapid mountain-streams tends to flatten the carapace, whereas residence in the warmer, and therefore less oxygenated waters of the plains, throws more work on the breathing-mechanism, and so tends to enlarge the gill-chambers and thus to blow out the carapace. The inferences, then, are—(1) that breadth of carapace alone is not a safe criterion of species; (2) nor is convexity of carapace, in the case of forms living at greatly different levels in the same basin. The "areolation" of the carapace, however, is constant.

(2) *Cervical groove:* as far as the Indian *Potamonidæ* are concerned, the course, the depth, the breadth, and the completeness or incompleteness of the cervical groove are all of constant value, not only in discriminating, but also in grouping the species, as will be noticed in the sequel.

(3) *Front:* the relative breadth of the front changes throughout the life of the individual, becoming less and less with age: so that this character is fallacious; the degree of declivity also varies in the same species; but the shape of the front, in so far as it depends upon (1) the amount of convergence of the sides, and (2) the sharpness of the supra-antennular fold, is not changeable, as a rule.

(4) *Orbit:* the presence or absence of a gap between the lower border and the outer angle of the orbit seems to be a fixed "point"; the shape of the orbit does not vary, but the prominence of the outer orbital angle does.

(5) *Antero-lateral borders of carapace:* their relative length (chord) is pretty constant, but the arc may vary much; their sculpture may get worn with age, but is otherwise fairly safe; the size of the lateral epibranchial tooth is variable in many species.

(6) *Epigastric crests:* the position of these, with regard to the front and with regard to the post-orbital crests, is fairly constant in any species.

(7) *Post-orbital crests:* the relation of these to the epigastric crests (whether continuous with them or not, and whether overlapped by them or not) and to the cervical groove (whether cleft by it or not) does not often vary, nor does their relation to the epibranchial spine; but the make of the

crests (whether they are unbroken throughout or ragged in places) is not so uniform.

[With regard to the sculpture and armature of the antero-lateral borders of the carapace, and with regard to the epigastric and post-orbital crests, I should like to say that, however important they may be for discriminating species, they do not *of themselves alone* give any clue to the affinities of species.]

(8) The shape of the abdomen of the *adult* male is a safe guide to affinities, and the shape of the two terminal segments, and sometimes of the fifth segment also, is often of diagnostic value for species; but this holds good only for the full-grown adult.

(9) *Antennal flagellum:* this has not been used much for differentiating species, but its taxonomic value is often very striking.

(10) *Mandibular palp.* Acting upon a suggestion made by Dr W. T. Calman, I have examined the mandibular palp in almost every individual of the collection described in the sequel. It never varies. Though of no value for differentiating species, it seems to me to be the long-desired index of natural affinities of species.

(11) *External maxillipeds.* The exopodite usually has a strong plumose flagellum, but there is quite a number of species in which the exopodite is non-flagellate. In some individuals of these non-flagellate species there may be a vestige of a flagellum—a mere papilla; and in one of these species some individuals may have, and sometimes on one side only, a well-developed flagellum. Some stress has been laid upon a longitudinal groove on the ventral surface of the ischium; but in species where it is distinct its position may be inconstant, and in species where it is indistinct its degree of distinctness may be variable to the vanishing-point. The shape and breadth of the merus are very constant.

(12) *Chelipeds.* The shape of the dactylus, which also determines the gape of the fingers, varies, and in the case of the larger cheliped (of the male in particular) the amount of difference, depending upon age, may be enormous. The chelæ of the larger cheliped seem to go on growing throughout life, and the most common growth-change is for the dactylus to become more and more curved and toothless. The inference is that distinctions based solely upon the form of the chelæ and the gape of the fingers are to be distrusted.

(13) *Legs.* As the proportions of the legs do not alter much with age, whereas in many species those of the chelipeds do, distinctions based solely upon the length of the legs relative to the length of the chelipeds may be fallacious.

In deciding the limits of species, I have estimated all these points to the best of my ability. In dealing with large series, I have often had the greatest difficulty in deciding between "species" and "variety": I can vouch that my "varieties" have cost me much work of the kind performed by King Bruce's spider.

As to the forms here described as varieties, I should of course, as a believer in the origin of species mainly by the accumulated selection of small adaptive variations, like to think that they were geographical races, or incipient species. But I do not know enough about them to say that they are so, or even to think that they are so. In fact, I do not always know what they are: there may be cases of individual abnormality among them.

In most cases where forms that seem to me to be varieties have been specifically named by other authors, I have used those names, as I do not like interfering with other people's finger-posts.

Geographical Distribution.—In the present confused state of the system, I do not think it safe to discuss the geographical distribution of the *Potamonidæ:* I shall restrict myself to a consideration of the manner of disposal of the family within the limits of the Indian Empire, beginning with certain bare statements regarding the composition and disposition of the three Indian genera.

1. The genus *Potamon.* The Indian species of this genus are arranged in four subgenera: *Potamon, Potamiscus, Geotelphusa, Acanthotelphusa.*

a. The subgenus *Potamon* includes twenty-eight or twenty-nine Indian species and varieties: the type is the palæarctic *Potamon fluviatile* Latr., which is found in South Europe and North Africa. The Indian species are found in Baluchistan, the Afghan border, all along the Himalayas from west to east, and thence still further eastwards to China and southwards to the Malay Peninsula and Islands.

No species of the subgenus *Potamon* has yet been found in the Indian Peninsula.

No species of the subgenus *Potamon* has yet been found in the Indo-Gangetic Plain, though one species (*P. fluviatile,* var. *ibericum*) has been found in the valley of the Jhelum at 2000 feet. The species said to come from Ceylon depends upon a dealer's locality of more than fifty years ago, and I do not accept it.

b. The subgenus *Potamiscus* includes two or three Indian species: all three belong to the Eastern Himalayan region, but one of them (*P. sikkimense*) has also been found at Ajmere in Rajputana—extra-peninsular.

c. The subgenus *Geotelphusa* includes three Indian species: the type is *Potamon* (*Geotelphusa*) *obtusipes,* Stimpson, from the Japanese Islands. Two of the Indian species occur in the Eastern sub-Himalayan region, one of them being also found in Burma.

One species (*P. enode,* Kingsley)[1] is said to occur in the Indian Peninsula.

[1] I have seen only one specimen of *Geotelphusa enodis* (Kingsley), and its mouth-parts were so much stuck together that I could not make out the form of the mandibular palp, so that I am not perfectly satisfied that it really belongs to the Potamon clan.

One (the type species) is said to have been found in the Indo-Gangetic Plain at Calcutta. I think this is likely to be a mistake. I know the *Potamonidæ* of Eastern Bengal fairly well, and the only Calcutta species at all like a *Geotelphusa* is *Paratelphusa* (*Phricotelphusa*) *campestris*.

d. The subgenus *Acanthotelphusa* includes eight Indian species and varieties. The type is *Potamon* (*Acanthotelphusa*) *nilotica* (Edw.) from Egypt. Three of the Indian species occur in the Eastern sub-Himalayan region. Six occur in Burma. Two occur in the Indo-Gangetic Plain—in its eastern part.

2. The genus *Paratelphusa*. The Indian species of this genus are arranged in six subgenera: *Paratelphusa*, *Barytelphusa*, *Oziotelphusa* (I use Müller's *name* for reasons of priority, but in an entirely different *sense*), *Phricotelphusa*, *Liotelphusa*, and *Globitelphusa*. The last three genera are not so sharply separated from one another at *all* points as could be wished.

a. The subgenus *Paratelphusa*. The type of this subgenus is *P. tridentata* (Edw.), from the islands of Malaysia. The Indian species are five in number. Two occur in Burma. Two occur in the Eastern sub-Himalayan region. One occurs in the Indo-Gangetic Plain. One aberrant species occurs in Baluchistan.

No species of the subgenus *Paratelphusa* has yet been found in the Indian Peninsula.

b. The subgenus *Barytelphusa*. The type of this subgenus is the common Indian *Paratelphusa* (*Barytelphusa*) *jacquemontii* (Rathbun) = *Telphusa indica* (Edw.); eighteen Indian species and varieties are included in it. Eight species belong to the Eastern sub-Himalayan region: nine belong to the Peninsula: one species has a wide range in the Indo-Gangetic Plain and extends to the Western Himalayan region at Naini Tal.

No species of the subgenus *Barytelphusa* has been found in Burma.

No species of the subgenus *Barytelphusa* has been found in the North-west Frontier region.

c. The subgenus *Oziotelphusa*. This subgenus, the type of which is the common Indian *Paratelphusa* (*Oziotelphusa*) *hydrodromus* (Herbst) = *T. leschenaudii* (Edw.), includes four Indian species and varieties. Three of these occur in the Peninsula. One—a doubtful species—is found in the Eastern sub-Himalayan region. One occurs in the Eastern part of the Indo-Gangetic Plain.

No species of the subgenus *Oziotelphusa* is found in Burma. No species is found in the Himalayas or in the North-west Frontier region.

d. The subgenus *Phricotelphusa*. The type of this subgenus is *Paratelphusa* (*Phricotelphusa*) *callianira* (de Man), from Mergui. It includes seven Indian species and varieties. Five belong to Burma. One belongs to the Eastern Himalayan region. One belongs to the Indo-Gangetic Plain, near Calcutta; but only one specimen of this species is known.

No species of the subgenus *Phricotelphusa* occurs in the Peninsula. No

species has been found in the Western Himalayas or in the North-west Frontier region.

e. The subgenus *Liotelphusa*. The type of this subgenus, which includes five Indian species and varieties, is *Paratelphusa* (*Liotelphusa*) *lævis* (W.-M.). Three species belong to the Eastern sub-Himalayan region. One belongs to Burma. One belongs to the Peninsula.

f. The subgenus *Globitelphusa* includes six species and varieties. Three are restricted to the Eastern sub-Himalayan region. Three are restricted to the western edge of the Peninsula. None is found in Burma.

No species either of *Liotelphusa* or *Globitelphusa* are found in the Western Himalayas, or in the North-west Frontier region, or in the Indo-Gangetic Plain.

3. The genus *Gecarcinucus*. This genus is closely related to the subgenus *Barytelphusa* of the genus *Paratelphusa*. It includes three species, all of which are restricted to the western edge of the Peninsula. The only other species known is from New Guinea.

To look at the matter from the converse side: the Indian fresh-water crabs appear to hang together in six territories, as follows:—

(1) A *Western Frontier Territory*, including Baluchistan, the North-west Frontier, and the north-west corner of the Punjab (Salt Range). Here we find only—(1) the subgenus *Potamon* (varieties of the common palæarctic species *P. fluviatile* Latr.), and (2) in the southern portion of the territory a species of the subgenus *Paratelphusa*—a species which, though in some respects quite singular, seems to be a derivative of *P. spinigera*.

(2) A *Western Himalayan Territory*, extending perhaps as far eastwards as Nepal. Here we find only—(1) species of the subgenus *Potamon* (species which are closely related to *P. fluviatile*), and (2) one species of the *Paratelphusa* subgenus *Barytelphusa*.

(3) A *North-eastern Frontier, or Eastern Himalayan, or Eastern sub-Himalayan Territory*, including Sikkim, Bhutan, and the lower Brahmaputra drainage system. In this territory there occur representatives of every subgenus of *Potamon* and of every subgenus of *Paratelphusa* that exists within the boundaries of the Indian Empire: in short, we find everything but *Gecarcinucus*. It looks as if this territory had been the motherland of the Indian branch of the family. Whence it was originally stocked is by no means clear; nor does it look as if it could have been stocked at one time and by one movement. It has certain very characteristic features of its own, for the details of which I refer to the appended Geographical List; it has certain intimate relations with the Malayo-Burman territory which, as they are *specific*, point to a recent connexion with that territory: and it has certain strong resemblances to the Malabar territory which, as they are in no case specific, would rather indicate an anterior connexion with that territory.

(4) A *Burma-Malay Territory*, including all that part of the Indian Empire that lies south of the new political province of Assam and east of the Bay of Bengal. Here we find representatives of three of the four subgenera of *Potamon* and of three of the six subgenera of *Paratelphusa*, six of the Potamons, but *none of the Paratelphusas*, being exoteric.

(5) A *Peninsular Territory*, including the Indian Peninsula south of the Indo-Gangetic Plain. How far Ceylon is included I cannot say: my reasons for excluding Ceylon from consideration are stated elsewhere. In this centre no species of the subgenus *Potamon* is found, nor any Potamon at all, except *Potamon* (*Geotelphusa*) *enode*, which, according to Henderson, has been met with in South India. With this exception, all the fresh-water crabs of the Peninsula are Paratelphusas and *Gecarcinucus*. Of the fifteen species of *Paratelphusa* proper to this territory, eight belong to the subgenus *Barytelphusa*, which is the predominant Paratelphusa subgenus of the Eastern Frontier territory, and three belong to the subgenus *Globitelphusa*, which is not found elsewhere out of the Eastern Frontier territory.

(6) *The Indo-Gangetic Plain*, including all the territory south of the Himalayan foothills and north of the Central Indian plateaux, from the Indus to the Brahmaputra. In this territory two species of the Potamon subgenus *Acanthotelphusa* are found, and no other species of the genus *Potamon*. Its other species belong to the Paratelphusa subgenera: *Paratelphusa* (one), *Barytelphusa* (three), *Oziotelphusa* (one), and *Phricotelphusa* (one). Only two of its species are peculiar to it, and one of these is perhaps only a race of an Eastern Frontier species. It looks as if this territory had been recently colonized from the East and from the South.

Although the distribution of the Indian fresh-water crabs does not at all points fit the schemes either of Blanford or of Wallace, there is nothing about it that is actually discordant with either of those schemes. The chief point of difference is that in the case of the *Potamonidæ*—(1) the Indo-Gangetic Plain is quite sharply separated from the Peninsula, and (2) the North-eastern Frontier territory is much more independent of Wallace's Indo-Chinese subdivision, and of Blanford's Transgangetic subdivision, of the Oriental region.

Blanford's zoological subregions are based entirely, and Wallace's very largely, on vertebrates; and it has therefore seemed to me more profitable to compare the distribution of the Indian *Potamonidæ*, not with Blanford's zoological subregions, but with the *physiographical* divisions upon which his zoological divisions are built.

Blanford divides the area of the Indian Empire into five primary *physiographical* regions, namely—(*a*) the Indo-Gangetic Plain, (*b*) the Indian Peninsula, (*c*) Ceylon, (*d*) the Himalayas, and (*e*) Assam, Burma, and the parts east of the Bay of Bengal.

(*a*) The Indo-Gangetic Plain is subdivided by Blanford into three physiographical "tracts"—a Punjab tract, which also includes Baluchistan; a North-west Provinces tract; and a Bengal tract, which also includes the Brahmaputra valley.

The Punjab tract he places in the south-east corner of the Mediterranean subregion of the Holarctic (Palæarctic) zoological region: the North-west Provinces tract is included in his Cisgangetic zoological subregion: the Bengal tract he includes in his Transgangetic zoological subregion.

These dispositions, based on the distribution of vertebrata, the present paper does not pretend to criticise: what I think it important to recognize is that, so far as the fresh-water crabs are concerned, the great physical tract known as the Indo-Gangetic Plain is a zoological division also.

(*b*) The Indian Peninsula. This physical feature is divided by Blanford into five tracts, namely: Rajputana, Central India, and Kathiawar; the Deccan; Behar-Orissa, including also the eastern part of the Central Provinces, Chota Nagpur, and the Northern Circars; the Carnatic and Madras; and the Malabar coast.

All these physiographical tracts are included in his Cisgangetic zoological subregion. And here again I do not wish to dissent from his conclusion, but only to draw attention to the facts that for the *Potamonidæ* the Peninsula as a whole is a zoological division as much as a physical one, and the Malabar coast physical tract is also a distinct zoological subdivision of it.

(*c*) Ceylon. Blanford recognizes two physical tracts in Ceylon, namely: a northern tract, practically continuous with the Cisgangetic subregion; and a hill tract, forming an outlier of the Malabar tract, and also included with that tract in the Cisgangetic zoological subregion.

I regret that I have not sufficient first-hand knowledge of the fresh-water crabs of Ceylon to include them in my analysis. Miss Rathbun, in her great monograph, gives the following list for Ceylon:—"*Potamon*" *soror* (Zehntner), "*Potamon atkinsonianum*" (W.-M.), *Potamon* (*Geotelphusa*) *enode* (Kingsley), *Paratelphusa* (*Oziotelphusa*) *hydrodromus* (Herbst), *Potamon* (*Barytelphusa*) *bouvieri* (Rathb.), *Paratelphusa* (*Barytelphusa*) *guerini* (Edw.), and "*Potamon*" *rugosum* (Kingsley). *Potamon rugosum* is a *Paratelphusa*. From Zehntner's account, *Potamon soror*, which is said to resemble *P. rugosum*, except in the shape of the front, is as likely to be a *Paratelphusa* as a *Potamon*. *Potamon enode* I know from only one specimen, in which the form of the mandibular palp cannot be distinguished. And *Potamon atkinsonianum* rests upon a specimen of *P. koolooense* in the British Museum, which, I understand from Dr Calman, was purchased from a dealer more than fifty years ago, when dealers' localities were, I think, not unimpeachable.

(*d*) The Himalayas. This great primary geographical division is cut by Blanford into three physical tracts, namely: Tibet; the Western Himalayan

tract, from Hazara to Nepal; and the Eastern Himalayan tract, from Nepal to the head of the Assam valley.

No *Potamonidæ*, so far as I know, have been reported from the Tibetan tract. I have collected in the western part of the tract, but did not find any traces of crabs there, and Captain F. H. Stewart's fresh-water collection from the eastern part of the tract contains no crabs.

But, as regards the eastern and western Himalayan tracts, I would point out that, for *Potamonidæ*, they are zoological as well as physical subdivisions.

(*e*) Assam, Burma, and the territories east of the Bay of Bengal. This physical division is separated by Blanford into six tracts, namely: Assam, including the neighbouring hills, Chittagong, and Arakan; Upper Burma; Pegu; Tenasserim, as far south as Mergui; the Andamans and Nicobars; and South Tenasserim. Of these the first four form part of Blanford's Transgangetic zoological subregion, and the last is included in his Malayan subregion. Here, again, the appended Geographical List seems to demonstrate that at least the northern part of the Assam tract is a division that can be recognized by its fresh-water crabs as well as by its physical features.

[With regard to the Andaman-Nicobar tract, I have nothing to say. I have never seen or heard of any *Potamonidæ* in the Andamans. Heller and Bürger report *Paratelphusa* (*Oziotelphusa*) *hydrodromus* (Herbst) (= *Telphusa leschenaudii*, Edw.), from the Nicobars; and if their identification, or, rather, since the identification of this species is hardly open to dispute, if their locality-label is correct, this is something extraordinary, as this species belongs to the Peninsula, Ceylon, and the eastern part of the Indo-Gangetic Plain.]

To conclude: while allowing that Blanford's zoological subdivisions of the Indian Empire, which are based on the present distribution of vertebrates, suit the *Potamonidæ* in a general way, it is here claimed that that author's physical subdivisions of the area have, as a rule, a much more exact correspondence with the tracts in which the constituent groups of the family are concentrated. It may also be added that Blanford himself emphasised, in the case of the vertebrate fauna, certain points which a study of the fresh-water crabs brings into strong relief. These points are as follows:—

(1) The close connexion between the Himalayas and Burma, and "the evidence in favour of the principal elements in the Himalayan fauna having been derived, probably at no distant period geologically, from the Assam range." I think that the evidence from the fresh-water crabs strongly corroborates this view.

(2) The identity of the river fauna (strikingly exemplified in the cetacean *Platanista*, the crocodilian *Gavialis*, the chelonian *Hardella*, and the siluroid *Sisa*) of the Indus and Ganges, and the consequent potency of the claim of the Indo-Gangetic Plain to recognition as a special zoological subregion.

(3) The difference between the vertebrate fauna of (*a*) the Eastern and

Western Himalayas, and of (*b*) Assam and Burma. Both these differences—the former quite clearly, and the latter a difference seen beneath a likeness—are brought out in a study of the fresh-water crabs.

(4) The presence in the Malabar tract of forms that do not occur in other parts of the Peninsula, or even in any other part of the Indian political area, and "the remarkable fact" that, beyond these forms restricted to the Malabar tract, there are many Himalayan or Burmese (or both) mammals and birds that are found in it and not in the Peninsula. Blanford also devotes a special note to the vertebrate genera that occur in India and Burma but not in the Himalayas. All three points, namely—(1) a close correspondence of genera (but not of species) between the Peninsula and the territory east of the Indo-Gangetic Plain to the exclusion of the plain itself; (2) a specially intimate correspondence between the Malabar tract and the said eastern territory; and (3) the restriction of certain forms to the Malabar tract;—are well illustrated by the fresh-water crabs. The evidence for these conclusions is presented in the following list of Indian Potamonidæ arranged geographically.

Geographical List of the Indian Potamonidæ.

1. WESTERN FRONTIER TERRITORY.

(Baluchistan and N.-W. Frontier Province.)

1. *Potamon fluviatile* var. *ibericum.*
2. „ „ var. *gedrosianum.*
3. Potamon sp.
4. *Paratelphusa blanfordi.*

2. WESTERN HIMALAYAN TERRITORY.

(Himalayas eastwards as far as Nepal.)

1. *Potamon atkinsonianum.*
2. „ „ var. *emphyseteum.*
3. „ „ var. *ambivium.*
4. *Potamon koolooense.*
5. *Paratelphusa* (*Barytelphusa*) *masoniana* (at Naini Tal).

3. NORTH-EASTERN FRONTIER TERRITORY.

(Sikkim, Bhutan, and the Lower Brahmaputra Drainage-System.)

1. *Potamon fluviatile* var. *monticola.*
2. *Potamon atkinsonianum.*
3. *Potamon bifarium.*
4. *Potamon andersonianum.*
5. „ „ var. *asperatum.*
6. „ „ var. *manipurense.*
7. *Potamon pealianum.*
8. „ „ var. *antennarium.*
9. *Potamon* (?) *tumidulum* (or *Potamiscus*).
10. *Potamon austenianum.*
11. *Potamon* (*Potamiscus*) *sikkimense.*
12. „ „ *annandalii.*
13. *Potamon* (*Geotelphusa*) *adiatretum.*
14. „ „ sp.
15. *Potamon* (*Acanthotelphusa*) *wood-masoni.*
16. „ „ *fungosum.*
17. „ „ *feæ.*
18. *Paratelphusa spinigera.*
19. *Paratelphusa trilobata.*
20. *Paratelphusa* (*Barytelphusa*) *edentula.*
21. „ „ sp. prox. *edentula.*
22. „ „ *napæa.*
23. „ „ *lugubris.*
24. „ „ „ var. *nigerrima.*
25. „ „ „ var. *plauta.*
26. „ „ *falcidigitis.*
27. „ „ *harpax.*
28. *Paratelphusa* (*Phricotelphusa*) *gageii.*
29. *Paratelphusa* (*Liotelphusa*) *lævis.*
30. „ „ „ var. *quadrata.*
31. *Paratelphusa* (*Globitelphusa*) *bakeri.*
32. „ „ „ var. *cylindrus.*
33. „ „ *pistorica.*
34. *Paratelphusa* (*Oziotelphusa*) sp.

4. BURMA TERRITORY.

(Upper Burma, Arakan, Pegu, Tenasserim.)

1. *Potamon atkinsonianum.*
2. *Potamon andersonianum.*
3. „ „ var. *tritum.*
4. „ „ var. *rangoonense.*
5. *Potamon edwardsi.*
6. „ „ var. *hirtum.*
7. *Potamon hispidum.*
8. *Potamon pealianum.*
9. *Potamon tumidum.*
10. *Potamon turgidulum.*
11. *Potamon simulum.*
12. *Potamon manii.*
13. *Potamon pruinosum.*
14. *Potamon turgidulimanus.*
15. *Potamon thagatense.*
16. *Potamon* (*Geotelphusa*) *adiatretum.*
17. *Potamon* (*Acanthotelphusa*) *dayanum.*
18. „ „ *wood-masoni.*
19. „ „ *crenuliferum.*
20. „ „ „ var. *floccosum.*
21. *Potamon* (*Acanthotelphusa*) *calvum.*
22. „ „ *feæ.*
23. *Paratelphusa sinensis.*
24. *Paratelphusa grayi.*
25. *Paratelphusa* (*Phricotelphusa*) *callianira.*
26. „ „ „ varieties.
27. „ „ *elegans.*
28. „ „ *carinifera.*
29. *Paratelphusa* (*Liotelphusa*) sp. prox. *lævis.*

5*a*. PENINSULAR PROVINCE—MAIN AREA.

(The Peninsula east of the Western Ghauts.)

1. *Potamon* (*Geotelphusa*) *enode.*
2. *Paratelphusa* (*Barytelphusa*) *jacquemontii* (= "Telphusa indica," Edw.).
3. *Paratelphusa* (*Barytelphusa*) *cunicularis.*
4. „ „ *guerini.*
5. *Paratelphusa* (*Barytelphusa*) *guerini*, var. *pocockiana.*
6. *Paratelphusa* (*Oziotelphusa*) *hydrodromus.*
7. „ „ *bouvieri.*
8. *Paratelphusa* (*Liotelphusa*) *austrina.*

5*b*. PENINSULAR PROVINCE—MALABAR ZONE.

(Western Ghauts from the Tapti to S. Travancore.)

No species of *Potamon* occurs in this zone.

1. *Paratelphusa* (*Barytelphusa*) *jacquemontii.*
2. „ „ *cunicularis*, and dwarf var.
3. „ „ *lamellifrons.*
4. „ „ *pulvinata.*
5. „ „ *guerini.*
6. „ „ „ var. *planata.*
7. „ „ *pollicaris.*
8. *Paratelphusa* (*Oziotelphusa*) *hydrodromus.*
9. „ „ „ var.
10. *Paratelphusa* (*Globitelphusa*) *pilosipes.*
11. „ „ *gubernatoris.*
12. „ „ *fronto.*
13. *Gecarcinucus jacquemontii.*
14. *Gecarcinucus edwardsi.*
15. *Gecarcinucus* (*Cylindrotelphusa*) *steniops.*

6. INDO-GANGETIC PLAIN.

(From Sind to the Brahmaputra.)

[1. *Potamon fluviatile*, var. *ibericum* (in Jhelum valley at 2000 feet).]
2. *Potamon* (*Acanthotelphusa*) *martensi.*
3. „ „ *wood-masoni.*
4. *Paratelphusa spinigera.*
5. *Paratelphusa* (*Barytelphusa*) *masoniana.*
6. *Paratelphusa* (*Oziotelphusa*) *hydrodromus.*
7. *Paratelphusa* (*Barytelphusa*) *jacquemontii* (at Morar and Hardwar).
8. *Paratelphusa* (*Barytelphusa*) *pocockiana* (at Chunar).
9. *Paratelphusa* (*Phricotelphusa*) *campestris* (one specimen found near Calcutta).

I must not conclude this introduction without duly acknowledging my obligations to Miss Mary J. Rathbun's great monograph, "Les Crabes d'eau

douce," published in the Nouvelles Archives du Muséum d'Histoire Naturelle, series 4, Vols. VI.-VIII., 1904-1906.

Though I do not accept Miss Rathbun's synthesis of subgenera and genera, I must express my admiration of her analytical tables of species,—the construction of which must have involved a prodigious amount of research and labour; and I must particularly admit the assistance that I have derived from her monumental bibliography of the Family. The existence of this bibliography relieves me of the responsibility of attempting anything of the sort for the Indian *Potamonidæ*, and provides a canonical reference for the several species described in the sequel.

I have elsewhere expressed my acknowledgments of the friendly help that I have so often received from Dr W. T. Calman of the British Museum; and I must also mention my obligation to Professor E. L. Bouvier, the renowned successor of renowned predecessors at Paris, for his kindness in authenticating one of my specimens that could not be resolved without an actual comparison with a type.

Finally, my thanks are due to the library staff, both of the British Museum in Cromwell Road and of the Zoological Society in Hanover Square, for the ready way in which they have often helped me, and to Dr Annandale for his liberal treatment of all my requirements.

The new species described in the following pages have already been briefly characterized in "Records of the Indian Museum," Vol. III., Parts III. and IV., for 1909.

II. SYSTEMATIC PART

Group BRACHYURA

Section Cyclometopa

Family POTAMONIDÆ

Thelpheusiens, Milne Edwards, Hist. Nat. Crust., II., p. 7, 1837.
Telphusinea vel Cancroidea Grapsidica, Dana, U.S. Expl. Exp., Crust., Pt. I., p. 292, 1852.
Thelphusinæ, Milne Edwards, Ann. Sci. Nat. Zool. (3), XX., 1853, p. 207.
Telphusidæ, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., pt. ii., 1871, p. 192.
Potamonidæ, Ortmann, Zool. Jahrb., Syst., IX., 1896, p. 445, and X., 1897, p. 296.
Potamonid.e, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, pp. 244, 245 (*ubi lit.*).

Carapace variable in shape—subquadrilateral, or oval, or even subcircular, but commonly broader than long; its regions may be either well or quite ill defined, but are seldom areolated to any marked extent. "Cervical groove" commonly clear and deep in all its extent; but sometimes interrupted, and not unseldom well defined only behind the mesogastric area.

Front in the adult almost always broad, only exceptionally as narrow as, or narrower than, the orbit; not separated from the inner supra-orbital angles; generally more or less deflexed, but occasionally hardly declivous at all; as a rule, broadly—even obscurely—bilobed, seldom (never in any Indian species) spinose.

Antero-lateral borders of carapace usually well arched and not longer (even sometimes shorter) than the postero-lateral borders, which are convergent.

Epistome well defined, of good length fore and aft, not encroached upon by the external maxillipeds.

Sternum broad. Abdomen of the male covering all the space between the last pair of legs. Genital ducts of the male opening free on the coxopodites of the last pair of legs.

The antennules usually fold transversely in narrow fossæ.

Antennal peduncles usually occupying the orbital gap, the distal joints usually overlapped by the front. Antennal flagella short, sometimes quite vestigial.

The palp of the external maxillipeds articulates at or near the inner angle of the merus. Mouth-cavern usually square.

Chelipeds usually more or less unequal in both sexes. Legs gressorial.

It is unnecessary, in dealing with the Indian fauna, to criticise any of the subdivisions of this family that have been proposed by other authors. I have, however, examined specimens of a good many exotic *Potamonidæ*, and I find that the family is cut in two by the mandible—or, rather, by the mandibular palp.

In one of these two sections the mandibular palp is of the normal brachyurous form, the terminal point being simple and falciform. Examples of this section are *Potamon fluviatile*, *Potamonautes perlatus*, *Geotelphusa dehaanii*, *Platytelphusa armata*, "Paratelphusa" *nilotica*, *Erimetopus spinosus*, *Trichodactylus quadratus*, *Dilocarcinus septemdentatus*, *Valdivia panoplus*, and *Deckenia imitatrix*.

In the other of these two sections the terminal joint of the mandibular palp is split from its base into two lobes, which embrace the incisor process of the mandible. Examples of this section are *Gecarcinucus jacquemontii*, *Paratelphusa tridentata*, *Peritelphusa borneensis*, *Pseudotelphusa dentata*, *Potamocarcinus latifrons*, "Potamon" *hydrodromus*, "Potamonautes" *jacquemontii* (= Telphusa indica, *auctorum*), "Geotelphusa" *lævis*.

I must add that I am indebted to Dr W. T. Calman of the British Museum for the suggestion that the mandibular palp might give the clue to the labyrinth of the *Potamonidæ*. I take this opportunity of expressing my great obligation to Dr Calman, not only for this hint, which I have found so interesting and so useful, but also for the kindness and patience with which he bore my many inquisitive trespasses upon his valuable time in the course of this work.

The Indian genera of the family *Potamonidæ* are exhibited in the following table :—

I. Mandibular palp of three distinct joints; the terminal joint simple, sometimes thickened at base for the attachment of a bunch of hairs .	Potamon.
II. Mandibular palp of two distinct joints; the terminal joint cut into two lobes which embrace the incisor process of the mandible :—	
1. Front much wider than the orbit	Paratelphusa.[1]
2. Front little or hardly wider than orbit	Gecarcinucus.[1]

[1] *N.B.*—To examine the palp, the mandible must be raised from its bed, as in repose only the anterior lobe can be seen, overlapping the incisor process.

Subfamily 1.—POTAMONINÆ

Genus I.—Potamon, Savigny

Potamon, Savigny, Mém. Anim. sans Vert., I., 107, 1816: Ortmann, Zool. Jahrb., Syst., X., 1897, p. 299.
Thelphusa, Latreille, Nouv. Dict. Hist. Nat., XXXIII., 500, 1819: Milne Edwards, Hist. Nat. Crust., II., p. 10, 1837.
Potamon, Mary J. Rathbun, Nouv. Archiv. du Mus. (4), VI., 1904, p. 247—for full references to literature, but not for the analysis and classification of the genus.

Carapace oval or subquadrilateral, either flat or convex, traversed anteriorly by a crest, which, on either side of the middle line, consists of two portions, namely—(1) a shorter, coarser, post-frontal or epigastric portion, and (2) a longer, sharper, post-orbital portion: these two portions may be distinct and discontinuous, or may be continuous, or one or both of them may be indistinct to the verge of disappearance (subgenus *Geotelphusa*).

Front always decidedly broader than the orbit, and varying from about two-fifths to about two-sevenths the greatest breadth of the carapace, of varying degrees of declivity, commonly broadly bilobed or sinuous. External orbital angle usually dentiform or spiniform, and usually separated from the lower border of the orbit by a gap.

Antero-lateral borders of carapace usually well defined, often cristiform and serrulate or crenulate, sometimes (subgenus *Acanthotelphusa*) cut into large teeth or spines; their curve is usually broken, somewhere near the level of the post-orbital crest, by a notch and spine—the lateral-epibranchial spine—but these may (subgenus *Geotelphusa*) be indistinct or obsolete. Postero-lateral borders usually "full" and indefinite, and crossed by oblique wrinkles continued from the sidewalls of the carapace.

The abdomen of the *adult* male is regularly triangular, the sides of the segments 3 to 6 being regularly convergent, the segments 5 to 7 not being abruptly narrowed, the length of the 6th segment much exceeding its distal breadth, and the 7th (terminal) segment being a broad triangle. The abdomen of the *adult* female is broad, its terminal joint never being elongate. In both sexes all seven segments of the abdomen are distinct and separate.

The edges of the epistome are well defined: the oral edge is not to any extent everted, so that the efferent branchial openings, though very distinct, are not subtubular. The edges of the meropodites of the external maxillipeds approach close enough to the edge of the epistome to conceal, or almost to conceal, the channel-like laminar terminal joint of the endopodite of the first maxillipeds.

The mandibular palp is of the normal brachyurous pattern: all three joints are separately distinguishable, and *the sickle-shaped terminal joint is simple*, not bilobed or bifurcate, and in repose lies altogether behind the incisor process of the mandible.

The chelipeds are generally more massive than the legs, and are commonly more or less unequal in both sexes.

The dactyli of the legs are stout, and are armed with four rows of strong translucent spines.

In the Indian species of *Potamon*, besides the simple mandibular palp, and besides the comparatively broad 6th abdominal segment of the adult male, there is a third character, which is of some diagnostic value: and that is, that the cervical groove, when it is distinct in all its course, never runs straight and wide to the lateral epibranchial tooth on either side, but makes more for the inner angle of the external orbital tooth and often cuts the post-orbital crest in that longitude.

It is not possible, from a consideration of the literature alone, to determine the incidence of this genus. I can only say, regarding Indian species, that it includes selections from the subgenera *Potamon*, *Potamonautes*, and *Paratelphusa* of Miss Rathbun's great monograph.

Among the Indian species, four principal groups, or subgenera, can be recognized, as follows:—

I. Antero-lateral borders of carapace usually finely serrulate or crenulate, without any *large* spines, except the lateral epibranchial spine: no subterminal spine on the upper border of the merus of the chelipeds:—
  i. Exopodite of external maxillipeds with a long, plumose flagellum:—
    1. Post-orbital crests and lateral epibranchial spine well developed . . . . . POTAMON.
    2. Post-orbital crests and lateral epibranchial spine ill developed, or obsolete . . . . . GEOTELPHUSA.
  ii. Exopodite of external maxillipeds with the flagellum vestigial or absent . . . . . POTAMISCUS.

II. Antero-lateral borders of carapace cut into large teeth or armed with sharp spines; upper border of merus of chelipeds with a subterminal spine . . . . . ACANTHOTELPHUSA.

Subgenus I.—POTAMON, Ortmann

Type: *Potamon potamios* (Oliv.)

The Indian species of the subgenus may be disposed in five companies, as follows:—

I. The cervical groove cuts or breaks the post-orbital crests at a point in or near the longitude of the inner limit of the external orbital tooth :—
  i. The legs are of moderate length ; in the two middle pairs the propodite is about two or two and a half times as long as broad :—
    1. Carapace either slightly convex or flat, its depth decidedly less than half its length :—
      a. Merus of external maxillipeds broader than long . . GROUP I.
      b. Merus of external maxillipeds as long as broad . . GROUP II.
    2. Carapace strongly convex fore and aft, its depth quite half its length . . . . . GROUP III.
  ii. The legs are very long and slender ; in the two middle pairs the propodite is three or four times as long as broad . . . GROUP IV.

II. The cervical groove does not distinctly cut the post-orbital crests ; but runs towards them, and then either becomes lost in the rugosities that lie between their outer ends and the lateral epibranchial teeth, or else may be indistinctly deflected behind the crests towards those teeth . . . . GROUP V.

The following are the sponsor-species of the several groups, for the Indian fauna :—

Group I. : *P. fluviatile ibericum* and *P. atkinsonianum.*

Group II. : *P. andersonianum.*

Group III. : *P. pealianum.*

Group IV. : *P. austenianum.*

Group V. : *P. manii* (probably the *P. larnaudii* of some authors) and *P. stoliczkanum.*

GROUP I. : *ibericum* and *atkinsonianum* group.

In this group (which includes *P. ibericum* and varieties, *P. atkinsonianum* and varieties, *P. koolooense*, and *P. bifarium*) the cervical groove is well-defined and cuts the post-orbital crest on either side at a point in line with the inner limit of the external orbital tooth, and the merus of the external maxillipeds is very distinctly broader than long.

The species of this group may be tabulated as follows :—

I. The epigastric crests are distinctly in advance of the post-orbital crests and independent of them :—
  i. The front in the adult is a third or more than a third the greatest breadth of the carapace . . . . *P. ibericum* and var.
  ii. The front in the adult is considerably less than a third the greatest breadth of the carapace . . . . *P. koolooense.*

II. The epigastric crests, though separated from the post-orbital crests by a groove, merely form the convexity of a common curve with the latter : front in the adult less than a third the greatest breadth of the carapace :—
  i. Propodites of two middle pairs of legs about twice as long as broad :—
    1. Size small, carapace of adult not exceeding $1\frac{1}{4}$ inch in length . . . . . *P. koolooense.*
    2. Size large, carapace of adult $1\frac{1}{2}$ inch or more in length . *P. atkinsonianum.*
  ii. Propodites of two middle pairs of legs more than two and a half times as long as broad . . . . . *P. bifarium.*

1. Potamon (Potamon) fluviatile (Latreille), var. ibericum (Marschall de Bieberstein). (Fig. 37.)

Cancer ibericus, Marschall de Bieberstein, Mem. Soc. Imp. Moscow, II., 1809, p. 4, pl. i., fig. 1.
Potamon (Potamon) ibericus, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 259, pl. ix., fig. 4 (*ubi synon.*).

Carapace length, in large adults, about $\frac{14}{15}$ths its greatest breadth; depth about two-fifths its length; moderately convex fore and aft, less so from side to side. Gastric region well defined, except postero-laterally, the epigastric and mesogastric areolæ distinct anteriorly, but other areolation quite indistinct. Cardiac region distinguishable but not well demarcated. Branchial regions not distinctly areolated. Cervical groove fairly but not equally distinct in all its course, cutting the post-orbital crests at a point in line with the inner angle of the external orbital spine. The greater part of the dorsum of the carapace is smooth, but the frontal and the anterior limit of the gastric region are rugose, and the antero-lateral surface of the epibranchial regions is obliquely rippled. The sidewalls of the carapace are obliquely rippled, and the pterygostomian regions and the well-defined suborbital lobes are pimpled. The antero-lateral margins of the carapace, which are longer than the ill-defined postero-lateral margins, are clean cut, gently curved, raised, and elegantly crenulate, the denticles regularly decreasing in size from the subacute epibranchial tooth backwards.

Front moderately declivous, very distinctly bilobed, its breadth in the adult slightly over one-third the greatest breadth of the carapace, its edges clean cut, somewhat everted, and usually smooth. Orbital margin also clean cut and somewhat everted: external orbital tooth prominent, subacute, separated from the lower border of the orbit by a notch.

Epigastric crests tumid, rugulose; separated from, overlapping, and well in advance of the post-orbital crests; the latter have a thin, almost sharp, edge, except for the small ragged outlying lobule cut off by the cervical groove.

In the abdomen of the adult male the length of the 6th segment is more than a half but less than two-thirds its greatest breadth, and that of the 7th is a little less than its greatest breadth.

Antennular fossæ narrow; interantennular septum very broad, formed in about equal parts by a process of the epistome and an infolded thickening of the front.

1st (true 2nd) antennal joint about as broad as long; 2nd and 3rd (true 3rd and 4th) joints in contact with and covered by the front.

Mandible with a high sharp incisor edge, and a narrow obliquely-truncated molar facet: palp of the ordinary form, *i.e.*, the terminal joint not bilobed.

All three pairs of maxillipeds have long exopodites with well-developed flagella. The 2nd joint of the endopodite of the first pair is a broad obtri-

angular plate. In the 3rd pair the exopodite projects more than one-sixth of its length beyond the ischium, which is longitudinally grooved in the middle line; and the merus, which is irregularly pentagonal with the antero-external angle nicely rounded off, is broader than long.

Chelipeds unequal, the larger one is about the same length as the 2nd (longest) true leg, and about half its length consists of hand. All three edges of the merus are bluntly crenulate; the upper and outer surfaces of the carpus and of more or less of the palm are rather faintly ripple-marked; the inner angle of the carpus is produced into a stout spine, with a cusp at its base and two or three small serrations on its front edge; the palm is longer than high, and about as long as the dactylus; and the fingers are stout, little compressed, curved, pointed, very slightly hooked at tip, and have small blunt teeth: the proximal part of the upper edge of the dactylus is, like the inner upper edge of the palm, pimply.

Legs stout, with merus and propodite compressed: in old specimens the joints (dactylus excepted) are nearly smooth, but generally the anterior border of the merus is crenulate, and both borders of the propodite are serrulate, the lower border most distinctly so; the dactyli always have four rows of thorns. In the 1st and 4th legs the breadth of the propodite is a little over, in the 2nd and 3rd a very little under, half the length: the anterior border of this joint is almost always convex, and not longitudinally grooved.

The carapace of a well-grown male is about 1·75 inch long by 2 inches broad.

This variety seems to range from the Crimea and Syria on the west, through the Caucasus and Persia, to Kashmir on the east. The following specimens are in the Museum collection:—

$\frac{4025}{4}$.	Near Shiráz.	W. T. Blanford.	4 ♀.
$\frac{4028}{4}$.	Afghanistán.	Purchased.	1 ♂, 4 ♀.
$\frac{4178}{4}$.	Teherán.	J. Anderson.	7 ♂, 1 ♀.
$\frac{3171}{5}$.	Loc.?	Karáchi Museum.	1 ♀.
$\frac{3402}{9}$.	Syria.	J. Anderson.	1 ♂, 1♀.
$\frac{7063}{9}$.	Transcaspia.	Tiflis Museum.	1 ♀.
$\frac{1616\text{-}18}{10}$.	Syria.	Turin Museum.	1 ♂, 2 ♀.
$\frac{5463}{10}$.	Afghanistán.	Rev. F. Warneford.	1 ♂, 1 ♀.
$\frac{5521}{10}$.	Khewrah Gorge, Jhelum Valley, 2000 feet.	Donor unrecorded.	1 ♂, 1 ♀.

The above-described variety *ibericum* differs from the variety *edule* of the Mediterranean region in the following characters:—

(1) The carapace is broader and not quite so deep;

(2) the epigastric crests are not so much in advance of the post-orbital crests;

(3) the cervical groove is not so well graven in all its course.

2. Potamon (Potamon) fluviatile (Latreille), var. Gedrosianum, nov. (or Potamon ibericum, var. Gedrosianum). (Fig. 1.)

This variety agrees with the variety *ibericum* in all but the following characters:—

(1) The carapace is broader, its length in large adults seldom exceeding $\frac{13}{16}$ths of its greatest breadth, the broadening being due to the more marked convexity of the antero-lateral borders;

(2) The cervical groove is deep-cut in its entire course, and there is distinct though faint areolation of the epibranchial regions;

(3) The epigastric crests are more tumid and are more in advance of the post-orbital crests.

The distinctness of the cervical groove is more marked even than in the variety *edule*.

In a large male the carapace is $2\frac{1}{8}$ inches long by $2\frac{1}{2}$ inches broad.

The following specimens are included in the collection:—

$\frac{6416}{3}$.	Salt Range, Punjab.	W. T. Blanford.	1 ♂, 1 ♀.
$\frac{6996}{3}$.	Near Hallur Habar.	Donor not recorded.	1 ♂, young.
$\frac{3167}{7}$.	Loc. not recorded.	Karáchi Museum.	1 ♂.
$\frac{1208\text{-}12}{10}$.	Baluchistán.	Boundary Commission of 1896.	3 ♂, 2 ♀.
$\frac{5015}{10}$.	Seistán.	Seistán Commission of 1904-5	2 ♂, 1 ♀.
$\frac{5504}{10}$.	Quetta.	Karáchi Museum.	1 ♂, 1 ♀.
$\frac{5527}{10}$.	Peshawur.	Donor not recorded.	1 ♂.
$\frac{5547}{10}$.	Pond of Shisba R., 6440 ft., Baluchistán.	Boundary Commission of 1896.	1 ♂.
$\frac{5550}{10}$.	Barshor R., Peshin Valley, Baluchistán.	J. Cleghorn.	4 ♂, 3 ♀, including the types of the variety.
$\frac{5554}{10}$.	Seistán.	Seistán Commission of 1904-5.	1 ♂, 1 ♀.

3. Potamon (Potamon) fluviatile, var. monticola, Wood-Mason (name only), or, Potamon ibericum var. monticola.

This small variety differs from *ibericum* in the following particulars:—

The carapace is broader, its length being only $\frac{13}{16}$ths its greatest breadth, and the epibranchial tooth is less distinct.

The front is less declivous and less distinctly bilobed.

The epigastric crests are only just in advance of the post-orbital crests.

The legs are longer, the 2nd (longest) pair surpassing the chelipeds.

In all these characters it resembles the following species, *P. koolooense*, Rathbun; but it differs from this in its more convex carapace, and (individuals of the same size and sex compared) in its wider front.

In the largest specimen—a male which seems to be adult—the carapace is just over $\frac{13}{16}$ths of an inch long, and just over $1\frac{1}{16}$ inch broad.

$\frac{4017}{4}$.	Khasi Hills.	T. C. Jerdon.	1 ♂.
$\frac{4032}{4}$.	Darjiling.	J. Anderson.	1 ♂, 2 ♀. Types.

It is remarkable to find a variety of *P. fluviatile* so far east, but there is no reason to doubt the labels.

4. Potamon (Potamon) koolooense, Rathbun. (Fig. 38.)

Potamon (*Potamon*) *koolooensis*, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 270, pl. x., fig. 1.

This species is distinguished from *P. fluviatile*, var. *ibericum*, by the following characters:—

(1) It is a smaller species, egg-laden females sometimes having a carapace less than an inch long;

(2) The carapace is broader (its length being only three-fourths of its greatest breadth), flatter, and more roughly rugose antero-laterally;

(3) The front is less declivous, is very obscurely bilobed, and is narrower—its breadth being less than one-third that of the carapace in the adult;

(4) The cervical groove is deeper cut;

(5) The epigastric crests are very slightly in advance of the post-orbital crests—the amount varies.

(6) The epibranchial tooth is not pre-eminent above the general serration of the antero-lateral borders of the carapace;

(7) The legs, even in the adult, are longer in relation to the chelipeds.

Carapace: length about $\frac{13}{16}$ths the greatest breadth, flat from side to side, almost flat fore and aft behind the frontal declivity. Gastric region well defined, the epigastric and mesogastric areolæ defined anteriorly, other areolation quite indistinct. Epibranchial regions rather faintly areolated—(1) by a median obliquely transverse depression; and (2) by extremely faint depressions festooning the gastric region behind the cervical groove. Cervical groove well graven, cutting the post-orbital crests at a point in line with the inner angle of the external orbital spine; sometimes, behind the spot where it cuts the crests, it appears to give off a branch that runs outside the crest towards the epibranchial tooth. The greater part of the carapace is smooth,

but the frontal region is tuberculous, the anterior limit of the gastric region is rugulose, and the antero-lateral part of the epibranchial regions is obliquely rugose; the side-walls are obliquely rippled, the striæ passing over the postero-lateral borders, and the pterygostomian regions and well-defined suborbital lobes are pimpled. The epigastric crests are rugulose; though only just in advance of the post-orbital crests, they usually slightly overlap the latter, and do not usually form a simple curve with them; the edge of the post-orbital crests is crenulate.

Front moderately declivous, very faintly bilobed even in a dorsal view, its width less than one-third the greatest breadth of the carapace in the adult, its edge well defined and beaded. External orbital tooth subacute, separated from the lower border of the orbit by a notch.

Antero-lateral borders of the carapace slightly shorter than the postero-lateral, gently curved (the curve invading the dorsum of the carapace posteriorly), very well defined, regularly crenulate; no large epibranchial tooth.

Abdomen, antennules, antennæ, and mouth-parts as described for *P. fluviatile* var. *ibericum*, the merus of the external maxillipeds being broader than long, and having its antero-external angle evenly rounded.

The only points where the chelipeds and legs differ to any extent from those of *P. fluviatile* var. *ibericum*, are that the 2nd (longest) pair of legs often reach beyond the tip of the larger cheliped, and that the propodites of the legs are shorter—their breadth, in the 2nd and 3rd pairs, being hardly half their length—and have their anterior border very distinctly (longitudinally) grooved, so as to present two very distinct edges, one serrated, the other smooth—as is the case with most species except *P. fluviatile*.

In a large female the carapace is $1\frac{1}{8}$ inch long and nearly $1\frac{1}{2}$ inch broad; in the largest male of the collection it is $1\frac{3}{16}$ by $1\frac{19}{16}$ inch.

This seems to be a very common species in the Western Himalayas, as *P. atkinsonianum* is in the Eastern Himalayas. The two species are extremely close to one another, but *P. koolooense* is smaller, has a carapace that is not so flat nor so distinctly areolated, and almost always has the epigastric crests distinctly, if slightly, in advance of the post-orbital crests.

	$\frac{6920}{3}$.	Simla.	F. Day.	2 ♂.
	$\frac{6962}{3}$.	Simla.	F. Day.	3 ♂, 2 ♀.
Ex	$\frac{4028}{4}$.	Afghanistán.	Purchased.	2 ♂, 1 ♀.
	$\frac{4047}{4}$.	No loc.	Purchased.	3 ♂, 1 ♀.
	$\frac{7697\text{-}8}{7}$.	Simla.	A. Newham.	1 ♂, 1 ♀.
	$\frac{7635\text{-}37}{9}$.	Dharmsála, 4000-5000 feet.	Dr Gray.	4 ♂.

$\frac{5448}{10}$.	Ramnee, Garwhal.	Museum Collector.	6 ♂, 1 ♀.
$\frac{5450}{10}$.	Nepál Terai.	Museum Collector.	1 ♂.
$\frac{5473\text{-}76}{10}$.	Bhim Tál, Kumaon, 4500 feet.	N. Annandale.	15 ♂, 17 ♀.
$\frac{5492}{10}$.	Naini Tál District.	Museum Collector.	1 ♂.
$\frac{5494}{10}$.	Hazára, United Provinces.	Museum Collector.	2 ♂, 1 ♀.
$\frac{5497}{10}$.	Naini Tál.	Purchased.	1 ♂.
$\frac{5516}{10}$.	R. Ravi, Chamba.	Captain Murray.	1 ♂, 1 ♀.

The eggs of *P. koolooense*, though large—about 2·5 mm. in diameter—are numerous.

5. Potamon (Potamon) atkinsonianum, Wood-Mason. (Fig. 39.)

Telphusa atkinsoniana, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., 1871, pt. I., p. 205, pl. xiv., figs. 12-16.
Potamon (Potamon) atkinsonianus, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 271 (*ubi lit.*).

This species resembles all the preceding in having the merus of the external maxillipeds broader than long.

From *P. fluviatile* and its varieties it differs in the following particulars:—

(1) The carapace is broader, its length being only three-fourths its greatest breadth, and behind the frontal declivity it is quite flat in both dimensions;

(2) The front is narrower, being considerably less than one-third the greatest breadth of the carapace in the adult; it is also less distinctly bilobed;

(3) The cervical groove is particularly deep-cut, and the epibranchial regions are very distinctly areolated;

(4) The epigastric and post-orbital crests, though distinctly separated from one another, form one curve, the general trend of which is gently convex forwards;

(5) The chelipeds are more boldly sculptured.

From *P. koolooense* it is distinguished by the following characters:—

(1) It attains a larger size;

(2) The carapace is flatter, with a deeper-cut cervical groove and more distinct areolation of the epibranchial regions;

(3) The epigastric and post-orbital crests form one curve; but this is sometimes the case in *P. koolooense*.

It must be admitted, however, that *P. atkinsonianum* and *P. koolooense* may probably be the extremes of one variable series, and so "species" only in a conventional sense, in so far as the extremes of the series can be defined. As

already mentioned, *P. koolooense* seems to be the Western Himalayan, *P. atkinsonianum* the Eastern Himalayan form.

Carapace: length in adult barely three-fourths its greatest breadth, depth a little over two-fifths its length, quite flat behind the frontal slope. The gastric region is extremely well defined, but its only indications of areolæ are anteriorly, where the front limits of the mesogastric and epigastric subregions are well graven. The gastric region is festooned, outside the cervical groove, by six very distinct areolæ, two of which, on either side, belong to the epibranchial regions, and two (smaller) in the middle to the anterior cardiac region; the epibranchial regions are further subdivided by a broad obliquely transverse groove. The cervical groove is very deeply graven, and cuts the post-orbital crests at a point in line with the inner angle of the external orbital spine. The frontal region is tuberculous; the anterior part of the gastric region is rugulose; the anterior part of the epibranchial regions is obliquely rugose; the side-walls of the carapace are tuberculous anteriorly (as are the well-defined suborbital lobes), and are obliquely rippled posteriorly, fine ripplings extending well over the postero-lateral borders.

The epigastric crests, though separated from the rather oblique post-orbital crests on either side by a groove, do not at all overlap the post-orbital crests, but merely form the most convex part of one common curve with them, this being the chief character besides size that separates this species from *P. koolooense;* the edge of these crests is rugulose and crenulate.

Front moderately declivous, faintly and broadly bilobed in a dorsal view, its breadth in the adult considerably less than one-third the greatest breadth of the carapace, its edge (like that of the orbit) well defined and very distinctly crenulate or beaded. Upper edge of orbit markedly sinuous. External orbital tooth prominent, subacute, and separated from the lower border of the orbit by a bight.

Antero-lateral borders of the carapace hardly as long as the postero-lateral borders, raised, serrulate, very gently curved, the curve not running on to the dorsum of the carapace posteriorly; the epibranchial tooth is not pre-eminent above the general serration of these borders.

In the adult male abdomen the length of the 6th segment is nearer two-thirds than one-half its greatest breadth, and that of the 7th segment is quite equal to its greatest breadth.

Antennular fossæ very narrow: interantennular septum very broad, formed rather more by the inturned callosity of the front than by the epistome.

First (true 2nd) antennal joint nearly square, the two succeeding joints covered by and in contact with the front.

Mandibles and maxillipeds as in *P. fluviatile* var. *ibericum*, the merus of the external maxillipeds being broader than long: the only difference is that the antero-external angle of this merus is not so evenly rounded off.

The chelipeds and legs differ from those of *P. fluviatile* var. *ibericum*, only in the following particulars :—

(1) In the chelipeds the whole of the upper and outer surface of the carpus and palm, and a good part of the inner surface of the palm, is rugulose, most so in the larger cheliped; the surface of the fingers also is rough, particularly the upper border of the dactylus, which is often denticulate.

(2) In the legs the upper border of the merus is more sharply serrulate, and both borders of the propodite are more sharply spinulose; moreover, the upper border of the carpus is spinulose, and the upper border of the propodite of the last three legs is longitudinally grooved so as to present a distinct double edge; again, in the 2nd and 3rd legs the breadth of the propodite is quite half its length.

Length of carapace of an adult male $1\frac{1}{2}$ inch, greatest breadth 2 inches.

This is chiefly an Eastern Himalayan species also extending into Burma, but it occurs also in the Western Himalayas :—

$\frac{6412}{3}$.	Rungbee, Sikkim.	J. Gammie.	2 ♂, 4 ♀.
$\frac{6415}{3}$.	Thankót Hills, Nepál.	Museum Collector.	1 ♂.
$\frac{6909}{3}$: $\frac{6971}{3}$.	Darjiling.	F. Stoliczka.	2 ♂, 1 ♀ (both young)
$\frac{6926}{3}$.	Darjiling.	Donor not recorded.	1 ♀.
$\frac{4031}{4}$.	Simla.	A. Rahman.	2 ♂, 1 ♀ (all young).
$\frac{4033}{4}$.	No locality.	Asiatic Society of Bengal.	1 ♂.
$\frac{3135}{5}$.	Sikkim.	W. S. Atkinson.	2 ♂, 1 ♀ (probably the types).
$\frac{2995}{7}$.	Darjiling.	No donor recorded.	1 ♂ (with 6th abdominal segment almost twice as broad as long).
$\frac{5013}{10}$.	R. Teesta, near Darjiling.	A. Alcock.	1 ♀ (young).
$\frac{5439}{10}$.	Bhim Tál.	Museum Collector.	1 ♀.
E. $\frac{5440}{10}$.	Kurseong, 5000 feet.	N. Annandale.	1 ♀ (young).
$\frac{5441}{10}$.	Shan Hills.	J. Coggin Brown.	1 ♀ (young).
$\frac{5472}{10}$.	Kurseong, 5000 feet.	N. Annandale.	1 ♂ (young), 4 ♀.
$\frac{5510}{10}$.	Darjiling.	W. King.	1 ♂.
$\frac{5880}{10}$.	Kurseong, 5000 feet.	N. Annandale.	1 old ♂, 2 young ♂.

One of the specimens in $\frac{5472}{10}$ is an egg-laden female taken at the end of May; the eggs are numerous and are nearly 3 mm. in diameter.

6. Potamon (Potamon) atkinsonianum, var. ventriosum.

An adult male in the collection must be more particularly noticed. It agrees in every respect with what I take to be Wood-Mason's type of the species, except in the form of the abdomen. The whole abdomen is broader, its 6th segment is twice as broad as long, and its 7th segment is a good deal broader than long. The specimen is a well-formed male with carapace $1\frac{3}{8}$ inch long and $1\frac{7}{8}$ inch broad.

$\frac{5485}{10}$.	Near Sanesvar, Kumaon, about 6000 feet.	L. L. Fermor.	1 ♂.

This "variety" may possibly be only an individual abnormality. I mention it, however, as in grouping the species I have laid stress on the form of the abdomen (and the correlated form of the mandibular palp). The abdomen is usually broader in young males than in adult males in the genus *Potamon*, but this is undoubtedly an adult.

7. Potamon (Potamon) atkinsonianum, var. emphyseteum. (Fig. 2.)

This variety, though of peculiar form of carapace, owing to the very strong convexity of the antero-lateral and concomitant strong convergence of the postero-lateral borders, can not be specifically distinguished.

It agrees with what I take to be Wood-Mason's type in all particulars except the following:—

(1) The antero-lateral borders of the carapace form a very strongly-convex curve and the postero-lateral borders are in consequence strongly convergent; the bulge of these epibranchial borders adds so much to the breadth of the carapace, that in some specimens it is more than three and a half times the width of the front. Other results of this lateral bulging are—(*a*) that the rugæ of the anterior part of the epibranchial regions are much more oblique; and (*b*) that the gap between the epigastric and post-orbital crests is wider, and this makes the epigastric crests appear more prominent.

(2) The length of the 6th abdominal segment of the adult male is always two-thirds its greatest breadth, whereas in a series of typical *atkinsonianum* it is a variable amount less than two-thirds.

In the largest male the carapace is $1\frac{7}{8}$ inch long and $2\frac{5}{8}$ inches broad.

$\frac{6991}{3}$.	Bilaspur, Punjab.	A. Rahman.	4 ♂, 5 ♀.
$\frac{6987}{3}$.	Kangra, Punjab.	F. Day.	1 ♂, 1 ♀.

Two other young males may be referred to this variety, the lateral puffing

of the epibranchial border being more than that of *atkinsonianum* but less than that of *emphyseteum*.

$\frac{6963}{3}$.	Simla.	No donor recorded.	1 ♂ (young).
$\frac{4021}{4}$.	Kumaon.	A. W. Lawder.	1 ♂ (young).

8. Potamon (Potamon) atkinsonianum, var. ambivium.

This puzzling little form is in a way intermediate between *P. koolooense* and typical *P. atkinsonianum*.

As in *P. atkinsonianum*, the cervical groove is deep-cut in its whole extent, and the epigastric crests form the convexity of a regular curve common to them and the post-orbital crests.

But like *P. koolooense* it is small and not quite flat in the carapace.

An egg-laden female has a carapace $\frac{15}{16}$ths of an inch long and $1\frac{3}{16}$ inch broad. The eggs, which are fairly numerous, are about 2·5 mm. in diameter.

$\frac{5436}{10}$.	Dharampur, Simla, 5000 feet.	N. Annandale.	3 ♂, 2 ♀.

9. Potamon (Potamon) bifarium, Alcock. (Fig. 3.)

This species can be sufficiently characterised by comparison with *P. atkinsonianum*, which it very closely resembles, differing only in the following particulars :—

(1) The carapace is distinctly convex fore and aft behind the frontal slope ;

(2) The antero-lateral borders of the carapace encroach on the dorsum of the carapace posteriorly ;

(3) The epibranchial and cardiac areolæ that festoon the gastric region outside the cervical groove are not so well defined ;

(4) The abdomen of the adult male is broader, the 6th segment varying in length (in specimens of equal growth) from two-thirds to half the greatest breadth, and the 7th segment being a good deal broader than long ;

(5) The legs are slenderer ; in the 1st and 4th (last) the length of the propodite is twice its breadth, in the 2nd and 3rd the length of the propodite is two and a half times its breadth, or even a little more.

Carapace : length in adult about three-fourths its greatest breadth, depth a little less than half its length, its surface being slightly convex fore and aft behind the frontal slope. The gastric region is well defined, the narrow anterior lobe of the mesogastric area being very distinct, and the front limits of the epigastric areolæ being indicated. Branchial regions bisected by an obliquely transverse groove and further subdivided by a less distinct groove running roughly parallel with the cervical groove. Cardiac region fairly distinct, as are the two small oval facets between it and the gastric region. Cervical groove well cut, becoming broad anteriorly and rather indistinctly breaking the post-orbital

crests in line with the inner angle of the outer orbital tooth. Frontal region tuberculous; anterior part of gastric region rugulose; anterior half of epibranchial regions obliquely rugose; side-walls of carapace tuberculous anteriorly (as are the well-defined suborbital lobes) and obliquely rippled posteriorly, the ripplings extending well across the postero-lateral borders.

The epigastric crests, though separated from the post-orbital crests on either side by a break, form the convexity of a common curve with the latter, which are crenulate and incline well forwards beyond the point of intersection by the cervical groove.

Front declivous, faintly and broadly bilobed in a dorsal view, its breadth in the adult considerably less than a third the greatest breadth of the carapace, its edge (like that of the orbit) well-defined and crenulate. Upper edge of orbit sinuous; external orbital tooth prominent, subacute, and separated from the lower border of the orbit by a gap.

Antero-lateral borders of carapace hardly as long as the postero-lateral, raised, serrulate, well-arched, the curve running on to the dorsum of the carapace posteriorly; epibranchial tooth not pre-eminent above the general serration.

In the adult male abdomen the length of the 6th segment is nearer half than two-thirds its greatest breadth, and is sometimes not more than half; that of the 7th segment is decidedly less than its greatest breadth.

Antennular fossæ narrow: inter-antennular septum very broad.

First (true 2nd) antennal joint broad, squarish, the two succeeding joints covered by and in contact with the front.

Mandibles and maxillipeds not appreciably different from those of *P. fluviatile* var. *ibericum*, except that the antero-external angle of the merus of the external maxillipeds is not so well rounded off.

The chelipeds are quite like those of *P. atkinsonianum*, the whole of the upper and outer surface of the palm and a good deal of the inner surface of the palm being rugose, and the upper border of the dactylus being tuberculous or denticulate in its basal half.

The legs also resemble those of *P. atkinsonianum*, but are more slender, the propodite of the 2nd and 3rd pairs being from two and a half to nearly three times as long as broad.

The carapace of the largest specimen is $1\frac{3}{5}$ inch long, and $1\frac{13}{16}$ inch broad—a male.

I name the species *bifarium*, as its local habitation, recorded on its label, is double, or doubtful.

$\frac{5512}{10}$. Sikkim or Burma. W. T. Blanford. 6 ♂.

The species may, perhaps, be only a variety of *P. atkinsonianum*, but its convex carapace and comparatively slender legs seem to be valid marks of distinction.

Group II. : *andersonianum* group.

In this group, which includes *P. andersonianum* and its varieties, *P. rangoonense*, *P. edwardsi*, *P. hirtum*, and *P. hispidum*, the cervical groove follows the same course, and cuts the post-orbital crests at much the same point, as in Group I., but the merus of the external maxillipeds is as long as, or longer than, broad.

The species may be tabulated as follows :—

I. Post-orbital crests salient and undermined as usual, and cut by the cervical groove at a point in line with the inner limit of the outer orbital spine :—
  i. Carpus of chelipeds dorsally umbilicated and with the anterior border a little tumid ; carapace and legs not hirsute :—
    1. Edge of front sinuous, faintly bilobed . . . . *P. andersonianum.*
    2. Edge of front sinuous, faintly four-lobed ; chelipeds particularly rough . . . . . *P. rangoonense.*
  ii. Carpus of chelipeds dorsally umbilicated and with the anterior border very much swollen ; large pustule-like tubercles on dorsum of palm of hand :—
    1. Carapace sparsely setose ; legs not hirsute . . . *P. edwardsi.*
    2. Carapace and legs strongly hirsute . . . . *P. hirtum.*

II. Post-orbital crests blunt, depressed, not undermined, and cut by the cervical groove at a point in line with the outer limit of the outer orbital spine ; carapace hirsute posteriorly, legs strongly hirsute . . . *P. hispidum.*

10. Potamon (Potamon) andersonianum, Wood-Mason. (Fig. 40.)

Telphusa andersoniana, Wood-Mason, Journal Asiatic Soc., Bengal, XL., Part II., 1871, p. 451, pl. xxvii., figs. 16-20.

Potamon (Potamon) andersonianus, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 274 (*ubi lit.*).

This species is distinguished from all the preceding by the form of the merus of the external maxillipeds, which, instead of being broader than long and pentagonal with the antero-external angle rounded, is slightly longer than broad and irregularly hexagonal.

From *P. fluviatile* and its varieties it further differs in the following particulars :—

(1) The cervical groove is broadly and deeply cut in all its extent ;

(2) The gastric and epibranchial regions are distinctly areolated, and the surface sculpture of carapace and chelipeds is bolder ;

(3) The front is narrower, its breadth in the adult being much less than one-third the greatest breadth of the carapace ;

(4) The external orbital and lateral epibranchial spines are less salient ;

(5) The epigastric and post-orbital crests, though distinctly separated, form one curve, the trend of which is very slightly convex forwards.

From *P. atkinsonianum*, *P. koolooense*, and their varieties, it differs in the following characters, besides that mentioned at the outset :—

(1) The superficial sculpture of the carapace is coarser and more abundant;

(2) The gastric region is usually well areolated, the mesogastric region at least being distinctly circumscribed in all its extent; and the areolæ of the epibranchial regions are much more sharply defined;

(3) The upper surface of the carpus is umbilicated, the anterior edge of the surface being tumid; and, except in very old males, the fingers of the chelipeds when closed have their cutting edges in close apposition throughout.

Carapace: length from four-fifths to almost three-fourths its greatest breadth, depth about two-fifths its length; quite flat behind the frontal slope. The gastric region is extremely well defined: often all its areolæ are distinctly demarcated, and the mesogastric areola at least is always distinctly circumscribed by a groove in all its extent. Each epibranchial region is distinctly cut into four unequal areolæ by deep grooves, one of which grooves is obliquely transverse and the other is roughly parallel with the cervical groove. The cervical groove is broad and deep, and cuts the post-orbital crests at a point almost in line with the inner angle of the external orbital tooth. The frontal and the anterior half or more of the gastric region are tuberculous or rugose; the anterior half of the epibranchial regions is strongly tuberculous or obliquely rugose; the posterior part of the epibranchial regions, on and near the postero-lateral borders, is rugulose; the sidewalls of the carapace are obliquely rugose, the ripple-like markings becoming coarser and more tuberculous anteriorly; the well-defined suborbital lobes are smooth or sparsely tuberculous.

Epigastric crests separated from the post-orbital crests, and forming the gentle convexity of a common curve with them; not more tumid or less rugose than the post-orbital crests.

Front little declivous, its edge sinuous and faintly bilobed, its width less than one-third the greatest breadth of the carapace, its edge well defined and faintly crenulate. The external orbital tooth is well indicated but not spiniform, and is separated from the lower border of the orbit by a notch.

Antero-lateral borders of the carapace about as long as the postero-lateral, raised, serrulate, gently curved, not encroaching much on the dorsum posteriorly; the lateral epibranchial tooth is distinct but not large.

In the adult male abdomen the length of the 6th segment varies from a little over half to nearly two-thirds its greatest breadth, and the 7th segment is nearly as long as broad.

Antennular fossæ very narrow fore and aft; inter-antennular septum very broad, formed about equally by epistome and frontal callosity. First (true 2nd) antennal joint squarish, the two succeeding joints covered by and in contact with the front.

Mandibles and external maxillipeds in a general way as described under

P. fluviatile var. *ibericum;* but the merus of the external maxillipeds is irregularly hexagonal, and is as long as, or a trifle longer than, broad.

The chelipeds and legs are in a general way as described under *P. fluviatile* var. *ibericum,* differing in the following particulars :—

As regards the chelipeds, their inequality is less; the edges of the merus are coarsely serrate rather than crenulate, and a tooth inside the distal end of the lower inner border is enlarged; the carpus has its upper surface dimpled or umbilicated and its anterior border somewhat swollen; the whole upper and outer surface of the carpus and palm, and much also of the inner surface of the palm, is rugose or tuberculous (but the tubercles of the palm are never large and bullous); the fingers are broader, so that when they are closed their cutting edges are in apposition throughout; and the extensor surface of the fingers is rough, the upper surface of the dactylus being tuberculous or coarsely serrate in its basal half.

As regards the legs, the propodites have their anterior border longitudinally grooved, so as to form a distinct double edge as in *P. atkinsonianum, koolooense,* etc.

In the largest specimen, a female, the length of the carapace is $1\frac{1}{8}$ inch, the greatest breadth $1\frac{3}{8}$ inch.

P. andersonianum seems to be a species pertaining to Upper Burma and north-eastern Siam, but also occurs in Lower Burma.

$\frac{6906}{3}$.	Kakhyen Hills, Ponsee, Upper Burma.	J. Anderson.	1 ♂, 3 ♀.
$\frac{6916}{3}$.	Yunan.	J. Anderson.	2 ♀.
$\frac{6929}{3}$.	Pegu.	S. Kurz.	1 ♂.
$\frac{6932}{3}$.	Momien, W. Yunan.	J. Anderson.	8 young.
$\frac{6936}{3}$.	Kakhyen Hills, Ponsee, Upper Burma.	J. Anderson.	6 young.
$\frac{6989}{3}$.	Burma.	W. Theobald.	2 ♂.
$\frac{4045}{4}$.	Momien, W. Yunan.	J. Anderson.	2 ♂ (type), 1 ♀.
$\frac{4334}{4}$.	Tavoy.	F. Stoliczka.	1 ♂, 1 ♀.

11. Potamon (Potamon) andersonianum, var. rangoonense. (Fig. 41.)

Potamon (Potamon) rangoonensis, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 279, pl. xi., fig. 2.

This supposed species, founded upon a large male (and a small male not quite similar), is, as a series in this collection shows, only a variety of *P. andersonianum.* It differs from the type specimen figured by Wood-Mason only in the following particulars :—

(1) The carapace is a little broader, its length being three-fourths of its

greatest breadth, and the areolation of the gastric region is slightly less distinct in places; its surface sculpture is rougher;

(2) The front is narrower—a difference due to age; and its edge is more sinuous, appearing faintly four-lobed;

(3) The surface sculpture of the chelipeds is much rougher.

The largest specimen, a male, has a carapace $1\frac{13}{16}$ inch long by $2\frac{3}{8}$ inches in greatest breadth. A female slightly smaller carries about 150 eggs about 3 mm. in diameter.

$\frac{4115}{4}$.	No locality recorded.	Captain Butler.	4 ♂, 2 ♀.
$\frac{4177}{4}$.	Tonghoo, Burma.	W. Theobald.	1 ♂, 2 ♀.

12. Potamon (Potamon) andersonianum, var. asperatum.

In this variety the entire carapace may be closely covered with minute granules—the only point of difference.

$\frac{5543}{10}$.	Ganjam, Cachar Hills, about 4000 feet.	Purchased.	4 ♂, 1 ♀ (all young).

13. Potamon (Potamon) andersonianum, var. manipurense.

In this variety the only difference is—(1) that the surface sculpture of the carapace has a worn look, especially on the side-walls; and (2) that the edge of the front is a little more sinuous—extremely faintly suggesting four lobes.

$\frac{6923}{3}$.	Manipur Hills.	H. H. Godwin-Austen.	1 ♂, 1 ♀.

14. Potamon (Potamon) andersonianum, var. tritum.

In this variety the surface sculpture is still more worn looking than in No. 13, especially on the fore part of the side-walls; and the edge of the front is as sinuous as it is in var. *rangoonense*, suggesting four lobes.

$\frac{4075}{4}$.	Sheetee Hill, Kakhyen Hills.	J. Anderson.	1 ♀.

15. Potamon (Potamon) edwardsi, Wood-Mason. (Fig. 42.)

Telphusa edwardsi, Wood-Mason, Journal Asiatic Soc., Bengal, XL., Part II., 1871, p. 449, pl. xxvii., figs. 11-15.

Potamon (Potamon) edwardsi, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 274 (*ubi lit.*).

This species, as Wood-Mason stated, is closely allied to *P. andersonianum*. The following are the points of difference:—

(1) The carapace is sparingly beset (more thickly on the after part of the side-walls) with stiffish setæ, and the edges of the legs are more setose;

(2) The tubercles of the fore part of the side-walls are less distinct;

(3) The carpus of the chelipeds has its anterior border much broader and more inflated—the curious inflated border is one of the most characteristic features of the species;

(4) On the upper surface of the palm there are, in addition to the strong serrations of its inner border, two or three rows of large pustulous or bullous tubercles—another characteristic feature.

In other particulars this species agrees with *andersonianum*.

Length of carapace $1\frac{1}{8}$ inch, greatest breadth $1\frac{1}{2}$ inch.

$\frac{6904}{3}$.	Hotha, Yunan; Kakhyen Hills, Ponsee, Upper Burma.	J. Anderson.	1 ♂ 1 ♀ (types).

16. Potamon (Potamon) edwardsi, var. hirtum. (Fig. 43.)

In this variety the tufts of bristly setæ on the dorsum of the carapace may be so numerous as to give the specimen a harsh woolly feel, and the edges of the legs are decidedly hirsute.

The pustule-like tubercles of the upper surface of the palm may be more numerous and smaller.

Length of carapace $1\frac{1}{8}$ inch, greatest breadth $1\frac{1}{2}$ inch.

$\frac{6961}{3}$.	Sheetee Hill, Kakhyen Hills, Upper Burma.	J. Anderson.	8 ♂, 3 ♀ (types and cotypes).
$\frac{4018}{4}$.	Hotha, Yunan.	J. Anderson.	1 ♂.

17. Potamon (Potamon) hispidum, Wood-Mason. (Fig. 4.)

Telphusa hispida, Wood-Mason, Journal Asiatic Society of Bengal, XL., 1871, Part II., p. 452, pl. xxviii., figs. 1-5.

Potamon hispidus, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 279 (*ubi lit.*).

This species resembles *P. andersonianum* and *edwardsi* in the shape and proportions of the merus of the external maxillipeds, but differs in the following particulars:—

(1) The carapace is broader, its length being slightly less than three-fourths its greatest breadth;

(2) The grooves of the dorsum of the carapace are broader and shallower, the areolation of the gastric region is less distinct, and the surface sculpture is more effaced;

(3) The cervical groove, besides being more superficial, takes a wider sweep so as to cut the post-orbital crests at a point almost outside the longitude of the external orbital spine;

(4) The post-orbital crests are lower and blunter;

(5) The chelipeds have a much smoother surface.

Carapace with tufts of short setæ both on dorsum and on side-walls; its length slightly less than three-fourths its greatest breadth, its depth about two-

fifths its length; flat behind the frontal slope. Gastric region well defined but not well areolated, the fore-limit of the posterior lobe of the mesogastric subregion being indistinct. The epibranchial regions are somewhat vaguely divided into four areolæ by a broad and shallow obliquely transverse depression, which is crossed by an even shallower sinuous depression roughly parallel with the cervical groove. The broad and superficial cervical groove cuts the post-orbital crests at a point almost outside the line of the external orbital tooth. The surface of the frontal and gastric regions is not distinctly rugose. The usual oblique rugæ of the antero-lateral part of the epibranchial regions are represented but indistinctly, as also are the rugæ of the side-walls.

The epigastric crests are separated from the post-orbital crests by a fissure, but form the very slight convexity of a common curve with them. The post-orbital crests are rugose, depressed, and blunt, and they almost fade away outside the point of intersection of the cervical groove.

Front little declivous, not one-third the greatest breadth of the carapace, its edge well defined, smooth or faintly crenulate, sinuously four-lobed. External orbital tooth not acute, separated from the lower border of the orbit by a notch.

Antero-lateral borders of carapace about equal in length with the postero-lateral, raised, gently curved, beaded; the lateral epibranchial tooth not salient.

In the male abdomen the 6th segment is nearly twice as long as broad, and the 7th is as long as broad.

Inter-antennular septum broad, formed about equally by epistome and front. First (true 2nd) antennal joint squarish, the two succeeding joints in contact with and covered by the front.

In the external maxillipeds the merus is of an irregular hexagonal shape, and is just as long as broad. In other respects the mouth-parts are as described for *P. fluviatile* var. *ibericum*, but the flagellum of the external maxillipeds is small.

Except for their comparative smoothness, the chelipeds are of the *P. andersonianum* style: that is to say, the carpus has its anterior edge somewhat swollen and its dorsal surface consequently somewhat umbilicated, and the fingers are broad so as not to gape when closed. The outer surface of the wrist and hand are not smooth, but they are not tuberculous; under a lens they are reticulate-rugulose.

The edges of the legs are thickly beset with tufts of stiff bristles; the propodites are short and broad.

Length of carapace $1\frac{1}{4}$ inch, breadth $1\frac{3}{4}$ inch.

$\frac{6411}{3}$.	Kakhyen Hills, Poonsee, Upper Burma.	J. Anderson.	1 ♂ (type).
$\frac{4007}{4}$.	Kakhyen Hills, Poonsee, Upper Burma.	J. Anderson.	1 ♀.
$\frac{7089\text{-}90}{9}$.	Moung Sal, Mekhok R.	Dr Gray.	1 ♂, 1 ♀.

Group III. : *pealianum* group.

In this group—which includes *P. pealianum*, *P. antennarium*, *P. tumidum*, *P. turgidulum*, and perhaps *P. tumidulum*—the cervical groove takes the same course, and cuts the post-orbital crest at the same point, as in Groups I. and II. ; but the carapace is deep (its depth being half its length) and has a marked convexity fore and aft.

The species may be tabulated as follows :—

I. Front with a bilobed eminence immediately behind and parallel with its edge ; size large :—
  i. Antennal peduncle in contact with edge of front as usual . . *P. pealianum.*
  ii. Antennal peduncle quite clear of front . . . . *P. antennarium.*

II. No circumscribed bilobed eminence at edge of front ; size small, the adult carapace about an inch long :—
  i. Flagellum of exopodite of external maxillipeds of normal size :—
    1. Post-orbital crest blunt ; 2nd pair of legs not longer than larger cheliped . . . . . *P. tumidum.*
    2. Post-orbital crest sharp ; 2nd pair of legs longer than larger cheliped . . . . . *P. turgidulum.*
  ii. Flagellum of exopodite of external maxillipeds extremely short ; post-orbital crest thick, blunt, and wrinkled . . . *P. tumidulum.*

P. tumidulum should perhaps be placed in the section, or subgenus *Potamiscus*, as the exopodite of the external maxillipeds has only a vestige of a flagellum.

18. Potamon (Potamon) pealianum, Wood-Mason. (Fig. 44.)

Telphusa pealiana, Wood-Mason, Journal Asiatic Soc., Bengal, XL., 1871, pt. II., p. 204, pl. xiv., figs. 7-11.
Potamon (Potamon) pealianus, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 310 (*ubi lit.*).

This species differs from all the foregoing in the following particulars :—

(1) The carapace is deeper, its depth being half its length, and is very much more convex fore and aft ;

(2) The edge of the front is vertically deflexed, and in a dorsal view is quite concealed by a bilobed frontal eminence ;

(3) The propodites and dactyli of the legs are longer.

From the *fluviatile* group it further differs—(4) in the much more distinctly areolated carapace ; and (5) in the form and proportions of the merus of the external maxillipeds, which is as long as broad and roughly hexagonal.

From the *atkinsonianum* group it further differs—(4) in the form and proportions of the merus of the external maxillipeds, as above ; (5) in the more superficial grooving and less prominent sculpture of the carapace, the edge also of the front and orbits being smooth, or nearly smooth, instead of crenulate ; and (6) in the more salient lateral epibranchial tooth.

From the *andersonianum* group it further differs—(4) in the more superficial grooving and smoother sculpture of the carapace; (5) in the more salient lateral epibranchial tooth; and (6) in the much less rugose chelipeds.

Carapace about four-fifths as long as broad, and half (occasionally not quite half) as deep as long, strongly convex fore and aft; its areolation is as described for *andersonianum* but all the grooves are more superficial. The antero-lateral part of the epibranchial regions is tuberculous or obliquely rugose, the whole postero-lateral part is obliquely rugulose; the side-walls are obliquely rugose, and the well-defined suborbital lobes are very sparely granulous. The cervical groove is distinct in all its course and cuts the post-orbital crests broadly in the line of the inner angle of the external orbital tooth.

Front strongly deflexed, much less than one-third the greatest width of the carapace; its edge is smooth, hardly sinuous, and in a dorsal view is quite concealed by a pair of frontal eminences very similar in size and form to the post-frontal crests. Of these frontal eminences there is no indication in the *fluviatile* and *atkinsonianum* groups, and hardly a suggestion in the *andersonianum* group. Upper border of orbit sinuous, nearly smooth; outer orbital tooth distinct but blunt, separated from lower border by a notch.

Antero-lateral margins of carapace longer than postero-lateral, raised, gently curved, serrulate, slightly encroaching on dorsum posteriorly; lateral epibranchial tooth prominent.

The epigastric crests, though separated from the post-orbital crests by a short groove, form the convexity of a common curve with the latter.

In the male abdomen the length of the 6th segment varies from half to nearly two-thirds its breadth, and the 7th segment is nearly as long as broad.

Antennular fossæ narrow; inter-antennular septum broad. The 1st (true 2nd) antennal joint is short and broad, and the two succeeding joints are sometimes overlapped by and in contact with the front, and sometimes in contact but not overlapped.

The merus of the external maxillipeds is roughly hexagonal and as long as broad; in other respects the mouth-parts are as described under No. 1.

Chelipeds little unequal; merus with crenulate edges, and an enlarged spine inside the distal end of the inner lower border; carpus with dorsal surface rugulose and fore border a little tumid, and with the usual bicuspid spine at the inner angle; palm with outer surface rugulose and upper border serrate; fingers broad, not gaping when closed; proximal end of upper border of dactylus serrulate.

Legs of the usual proportions, the 2nd (longest) pair not much surpassing the chelipeds; the dactyli are longer than their propodites, and the propodites

are rather long, those of the 1st and 4th pairs being twice as long as broad, while those of the 2nd and 3rd pairs are more than two and a half times as long as broad.

In the largest specimen the carapace is $1\frac{7}{16}$ inch long, $1\frac{14}{16}$ inch broad, and $\frac{12}{16}$ths inch deep.

P. pealianum has been found in Assam and Upper Burma.

$\frac{6413}{3}$	Sibsagar, Assam.	S. E. Peal.	4 ♀.
$\frac{6958}{3}$			1 ♂.
$\frac{6960}{3}$			7 ♂.
$\frac{6963}{3}$			1 ♀.
$\frac{1004}{4}$			1 ♀.
$\frac{5509}{10}$			3 ♂, 2 ♀.
$\frac{5511}{10}$			3 ♂, 1 ♀.
$\frac{6915}{3}$	Kakhyen Hills.	J. Anderson.	1 ♂, 2 ♀.

19. Potamon (Potamon) pealianum, var. antennarium.

In this "variety" (using the term "variety" without any implication) the antennular fossæ are wide fore and aft, and the inter-antennular septum is formed chiefly by a process of the epistome; again, the antennal peduncle stands quite clear of the front, not being in contact with or at all overlapped by the frontal margin.

The whole difference, remarkable though it is, is due to an overgrowth of the epistomial portion of the inter-antennular septum, which pushes up the front, and this overgrowth seems to occur (only) in old individuals of the female sex.

Length of carapace $1\frac{11}{16}$ inch, breadth $2\frac{3}{16}$ inches, depth $\frac{12}{32}$nds inch.

$\frac{6946}{3}$.	No locality recorded.	Captain Butler.	2 ♀.
Ex $\frac{6960}{3}$	Sibsagar, Assam.	S. E. Peal.	1 ♀.
Ex $\frac{5511}{10}$			1 ♀, with about a dozen young attached.

This "variety" may be merely a matter of advanced age. I mention it, however, as it is striking, and as the overlapping of the antennæ, or otherwise, by the front has been used as a generic character in this family.

20. Potamon (Potamon) tumidum, Wood-Mason. (Fig. 45.)

Telphusa tumida, Wood-Mason, Journal Asiatic Society, Bengal, XL., 1871, pt. II., p. 453, pl. xxvii., figs. 6-10.
Potamon (*Potamon*) *tumidus*, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 312 (*ubi lit.*).

This species differs from *P. pealianum* chiefly in the following particulars :—

(1) The front is much broader, and there is, at most, merely a suggestion of a bilobed eminence behind its edge ;

(2) The epigastric crests are distinctly in advance of the post-orbital crests ;

(3) The epibranchial tooth is less prominent, as also is the outer orbital tooth.

Carapace, length about $\frac{13}{16}$ths the greatest breadth, depth half the length, strongly convex fore and aft, areolated as in *andersonianum*, though the grooves are more superficial. The frontal and anterior part of the gastric regions are rugulose ; the usual tubercles or wrinkles occur on the anterior part of the epibranchial regions ; the postero-lateral margins are rugulose, the oblique markings here running on to the sidewalls of the carapace where, anteriorly, they pass into little groups of beady granules which also cover the pterygostomian regions.

Front broad, more than one-third the greatest breadth of the carapace, strongly deflexed, its edge smooth and hardly sinuous. External orbital tooth obsolescent or merely an angle, confluent with the lower border of the orbit or with only a vestige of an intervening gap.

Antero-lateral border of the carapace longer than the postero-lateral, raised, crenulate, slightly curved. Lateral epibranchial tooth and the gap between it and the outer orbital angle small and inconspicuous.

Epigastric crests more tumid than the post-orbital crests, and independent and in advance of them. The post-orbital crests have a broken blunt edge, not at all undermined or overhanging ; they are cut by the cervical groove at the usual point.

In the male abdomen the 6th segment is about twice as broad as long, and the 7th is as long as broad.

Antennular fossæ narrow ; septum broad. The 1st (true 2nd) antennal joint is short and broad, the two succeeding joints are covered by and in contact with the front.

The mandibles and maxillipeds conform to the description given under *P. fluviatile ;* the merus of the external maxillipeds is broader than long, but its antero-external angle is not evenly rounded off.

Chelipeds a little unequal. The outer surface of merus and carpus and all surfaces of the palm usually have a low subsquamiform sculpture. The edges of the merus are crenulate. There is the usual spine at the inner angle of the carpus, but it is short, coarse, and often rather obtuse. The upper edge of the palm is subserrulate, and there are some small pustule-like tubercles on the

contiguous edge of the dactylus. The fingers are not in close apposition when closed.

The legs are hardly longer than the chelipeds; the length of the propodite of the 2nd and 3rd pairs is about twice its breadth; the dactyli are longer than the propodites.

Length of carapace of apparent adults $\frac{15}{16}$ths inch, breadth $1\frac{2}{16}$ inch, depth $\frac{8}{16}$ths inch.

$\frac{6935}{3}$.	Kakhyen Hills, Ponsee, Yunan.	J. Anderson.	7 ♂, 3 ♀.
$\frac{6937}{3}$.	Momein.		3 ♂, 2 ♀.
$\frac{6954}{3}$.	Hotha, Yunan.		9 ♂, 4 ♀.
$\frac{6957}{3}$.	Hotha, Yunan.		1 ♂, 1 ♀ (types).
$\frac{6927}{3}$.	? Darjiling.		2 ♂.

21. Potamon (Potamon) turgidulum, Alcock. (Fig. 5.)

A small species resembling *P. tumidum*, but conspicuously differing from that species by—(1) the indistinct and very superficial carapacial grooves; (2) the more elongate merus of the external maxillipeds; and (3) the longer and slenderer legs.

It is also very close to *P. inornatum* Rathbun, but cannot be said to have the sub-branchial regions visible in a dorsal view.

Length of carapace a little more than four-fifths its greatest breadth, depth usually a little more than half its length.

Carapace strongly convex fore and aft, areolated as in *tumidum*, but the grooves are so superficial and so faint that they can only be made out by careful illumination. Even the cervical groove is very faint anteriorly, except at the usual point—in line with the inner angle of the external orbital tooth—where it cuts the post-orbital crests.

The surface sculpture of the carapace is as described in *P. tumidum*, except that the pterygostomian regions are less granulous.

Front not less than one-third greatest breadth of carapace, strongly deflexed, its edge faintly crenulate and distinctly bilobed. External orbital tooth distinct, separated from lower border of orbit by a very shallow notch.

Lateral epibranchial tooth and notch between it and outer orbital tooth conspicuous. Antero-lateral borders longer than postero-lateral, curved, crenulate, raised. Postero-lateral borders obliquely rugulose.

Epigastric crests separated from post-orbital crests by an indistinct groove

and forming the convexity of a common curve with them. Post-orbital crests prominent, with the edge distinctly defined.

Male abdomen with the 6th segment twice as broad as long, and the 7th as long as broad.

Antennules and antennæ as in *tumidum*. Mouth-parts differing from those of *tumidum* in that the merus of the external maxillipeds is quite as long as broad.

Chelipeds as in *tumidum*, but the sculpture is crisper and the spine at the inner angle of the carpus is longer and acute.

Legs long, the 2nd (longest) pair considerably longer than the chelipeds; in the 2nd and 3rd pairs the length of the propodite is more than twice its breadth; dactyli very long.

Length of carapace $\frac{15}{16}$ths inch, breadth $1\frac{3}{16}$ inch, depth $\frac{8}{16}$ths inch.

One of the specimens is an egg-laden female, the eggs being few and nearly 3 mm. in diameter.

$\frac{6952}{3}$.	Burma.	W. Theobald.	11 ♂, 6 ♀.
$\frac{5487}{10}$.	Upper Tennasserim.	J. Wood-Mason.	1 ♀, 2 young.
$\frac{5496}{10}$.	Upper Tennasserim.	J. Wood-Mason.	1 young ♀ (prob. this sp.).

22. Potamon (Potamon?) tumidulum, Alcock. (Fig. 6.)

This species appears to be related to *tumidum* and *turgidulum*, but it differs from them and goes near to the *Potamiscus* subgenus in having only a vestige of a flagellum to the exopodite of the external maxillipeds.

Carapace: length about four-fifths greatest breadth, depth half the length, convex fore and aft. The cervical groove is well graven in all its course and breaks the post-orbital crest at a point in the longitude of the inner limit of the external orbital tooth. The mesogastric and epigastric areolæ are distinctly, if superficially, defined. The epibranchial regions are bisected by a strong obliquely-transverse groove, and are again divided by an indistinct depression that skirts the cervical groove. Antero-lateral region of the carapace rugulose; postero-lateral borders crossed by short faint ripples; side-walls with almost effaced ripple-markings.

Front, in adult, less than a third the greatest breadth of the carapace, strongly deflexed, its edge smooth; broadly bilobed in a dorsal view. External orbital tooth small, separated from lower border of orbit by a shallow gap. Antero-lateral borders raised, crenulate; epibranchial tooth distinct.

Epigastric crests rugulose, more tumid than the post-orbital crests and independent of and slightly in advance of them. Post-orbital crests broad, blunt, rugose, with a coarse, ill-defined edge; they are cut by the cervical

groove at the usual point, outside which they are low and quite confused with the wrinkles of the carapace.

In the male abdomen the 6th segment is nearly twice as broad as long, and the 7th is nearly as long as broad.

Palp of mandibles simple. Merus of external maxillipeds nearly as long as broad; the exopodite of these appendages with only a vestige of a flagellum.

Chelipeds a little unequal, the extensor surface pitted and uneven rather than rugulose; spine at inner angle of carpus coarse but sharp; fingers as long as palm, fluted and pitted. Legs (1st and 2nd pairs) about as long as chelipeds; dactyli longer than propodites; propodites not twice as long as broad.

Carapace of an adult female $\frac{7}{8}$ths inch long, just over 1 inch broad, $\frac{7}{16}$ths inch deep.

$\frac{5507}{10}$. Sikkim. J. Wood-Mason. 1 ♂, 2 ♀ (types of the species).

Group IV.: *austenianum* group.

As in Groups I., II., and III., the cervical groove cuts the post-orbital crests at a point in the longitude of the inner angle of the external orbital tooth, and as in Group II. the merus of the external maxillipeds is as long as broad. Though the carapace as a whole is flat behind the frontal slope, the anterior part of the epibranchial regions is distinctly convex. But the characteristic feature in this group are the long slender legs, the propodites of the two middle pairs being three or four times as long as broad.

1. Areolation of carapace distinct; breadth of front, in adult, more than a fourth the greatest breadth of the carapace . . . . . *P. austenianum.*
2. Areolation of carapace indistinct; front, in adult, less than a fourth the greatest breadth of the carapace . . . . . *P. simulum.*

23. *Potamon* (*Potamon*) *austenianum*, Wood-Mason.

Telphusa austeniana, Wood-Mason, Journal Asiatic Society of Bengal, XL., part II., 1871, p. 203, pl. xiii.
Potamon austenianus, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 287 (*ubi lit.*).

There is no specimen of this species in the collection. The species, which is found at Cherra Punji, differs from all its congeners except *P. simulum* in the enormous length of the legs. The characters which distinguish it from *P. simulum* are given in detail with the description of the latter species.

24. Potamon (Potamon) simulum, Alcock. (Fig. 7.)

This species is distinguishable from all its fellows of the subgenus, except *P. austenianum*, by the long slender legs.

It seems to differ from *P. austenianum* in the following particulars:—

(1) The carapace is shorter and wider;

(2) The areolation of the carapace is much less distinct; the cervical groove, though broad, is quite superficial anteriorly; the transverse oblique depression subdividing the epibranchial regions can be felt rather than seen; and though the mesogastric furrow separating the epigastric crests is deep and very distinct and the epigastric areolæ are tumid, the sub-divisions of the gastric region are not otherwise perceptible;

(3) The front is very much narrower, is vertically deflexed, and though its surface is finely rugulose in places it is not raised into any distinct eminences;

(4) The antero-lateral margins are more strongly curved and their serrations form a continuous series, not interrupted by a distinct gap, with the external orbital tooth;

(5) The legs, though long and slender, are not so long; the individual joints are not so slender, for instance, in the 2nd and 3rd pairs the propodites are only three and a half times as long as broad.

Length of carapace little more than two-thirds the greatest breadth, depth little more than two-fifths the length.

Carapace decidedly convex behind the frontal slope; the gastric region is well defined as is the tip of the mesogastric sub-region, but there is no other distinct areolation. On the antero-lateral part of the epibranchial regions there are oblique lines of granules and a few small tubercles; similar oblique lines of granules cover the side-walls of the carapace, but the well-defined sub-orbital lobes and the pterygostomian regions are almost smooth; and the dorsum of the carapace inside the epibranchial striæ is very smooth. The cervical groove is deep-cut posteriorly, but broad and very superficial anteriorly, except where it breaks through the post-orbital crests at the usual spot in line with the inner angle of the external orbital tooth.

Front narrow, not one-fourth the greatest breadth of the carapace in the adult, very strongly deflexed, square-cut, its edge well-defined and faintly sinuous. Upper edge of orbit sinuous. External orbital tooth well defined, separated from the lower border of the orbit by a deep gap.

Antero-lateral margins of carapace hardly as long as the postero-lateral, strongly arched, cristiform, and rather irregularly serrulate; lateral epibranchial tooth distinct, but the gap between it and the orbit is not conspicuous above the neighbouring interserrations. Postero-lateral borders markedly convergent aft, crossed by a few very fine striæ.

Epigastric crests separated from the post-orbital crests by a short notch and almost in the same straight line with the post-orbital crests; both sets of crests are well defined and have a finely rugulose edge.

Antennular fossæ narrow; so strongly deflexed is the front that their opening is horizontal. Basal (true 2nd) antennal joint short and broad, the succeeding joints covered by the front.

Mandibular palp normal. All the maxillipeds have a long flagellum to the exopodites. In the external maxillipeds the merus has a well-defined apex, and is as long as broad.

Chelipeds unequal, of somewhat fine make, their surface very finely rugulose. The merus has crenulate edges, and a tooth just inside the inner lower border, towards the distal end, is much enlarged. The carpus has the usual bicuspidate spine at its inner angle; its upper surface is not sunken, nor is its anterior border inflated. The fingers gape when closed.

The legs are long—but not longer than the larger cheliped—and slender; in the 1st and 4th pair the length of the propodite is two and a half times, in the 2nd and 3rd pair three and a half times its breadth.

The only specimen is a female, whose carapace is $1\frac{5}{16}$ inch long, $1\frac{5}{16}$ inch broad, and $\frac{9}{16}$ths inch deep.

$\frac{6914}{3}$. Burma. W. Theobald. 1 ♀.

Group V.: *larnaudii* and *stoliczkanum* group.

In this group, which includes, among exotic species, *P. larnaudii*, *P. brevimarginatum*, and *P. stoliczkanum*, and, among species appertaining to the British-Indian ráj, *P. manii*, *P. pruinosum*, *P. turgidulimanus*, and *P. thagatense*, the cervical groove does not distinctly cleave the post-orbital crests; but it either becomes indistinct before reaching the crests, or, if it be distinct, it runs nearly up to the crests, and then may either run behind them almost up to the lateral epibranchial tooth, or else is lost in the neighbouring rugæ.

The Indian species and those most nearly related to them may be tabulated as follows, exotic species being included in square brackets:—

I. The tubercles and wrinkles of the dorsum of the carapace are chiefly confined to the antero-lateral part of the epibranchial regions:—
  1. Post-orbital crests broken into tubercles at their outer end; merus of external maxillipeds as long as broad . . . [*P. larnaudii.*]
  2. The post-orbital crests are continued without break into the lateral epibranchial teeth; merus of external maxillipeds broader than long . . . . . *P. manii.*

II. Anterior third or half of the carapace thickly tuberculous and rugose; merus of external maxillipeds broader than long:—
  1. A gap between the outer angle of the orbit and the lower border of the orbit:—
    i. Cervical groove deep and distinct . . . [*P. brevimarginatum.*]
    ii. Cervical groove very indistinct anteriorly . . . *P. pruinosum.*
  2. No gap below the outer angle of the orbit . . . *P. turgidulimanus.*

III. The surface of the carapace is almost free of tubercles and wrinkles; post-orbital crests continuous with the lateral epibranchial teeth:—
  1. Edge of front two-lobed; no distinct break between the epigastric and post-orbital crests . . . . . [*P. stoliczkanum.*]
  2. Edge of front four-lobed; a distinct break between the epigastric and post-orbital crests . . . . . *P. thagatense.*

Potamon (Potamon) larnaudii, A. Milne Edwards.

Telphusa larnaudii, A. Milne Edwards, Nouv. Archiv. du Muséum, Paris, V., 1869, p. 166, pl. x., fig. 4.
Potamon (Potamon) larnaudii, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 275, pl. x., fig. 7 (*ubi lit.*).

This species differs from all the preceding in the fact that the cervical groove does not cut the post-orbital crests. The post-orbital crests are, indeed, usually ragged or broken into tubercles near their outer end, but not by the cervical groove. The cervical groove which is deep posteriorly, becomes broad, superficial, and then faint anteriorly, and so far as it can be traced it runs to the lateral epibranchial tooth, without branching to cut off a lobe of the post-orbital crest. Another character, upon which Miss Rathbun lays stress, is the breadth of the posterior lobe of the mesogastric areola, which is a third (in large individuals not quite a third) the breadth of the carapace.

Carapace slightly convex fore and aft, its length a little over three-fourths its greatest breadth, its depth about three-sevenths its length. The gastric region is not particularly well defined from the epibranchial regions anteriorly; the anterior part of the mesogastric region is very narrow. There is no very *distinct* areolation of the epibranchial regions. The surface of the carapace is profusely pitted; the anterior part of the frontal region is granulous, the epigastric crests are rugulose, and there are some tubercles and oblique wrinkles on the antero-lateral part of the epibranchial regions, but otherwise the dorsum is very smooth; the side-walls of the carapace are marked with fine oblique rugæ, which also invade the postero-lateral borders; the suborbital lobes are smooth or sparsely granulous; the pterygostomian regions are smooth or at most granulous along the outer edge.

The front in adults is less than a third the greatest breadth of the carapace; its edge is smooth, well defined, and broadly bilobed, the lobes being sometimes a little sinuous. The outer orbital tooth is well defined and is separated from the lower border of the orbit by a gap.

Antero-lateral borders of the carapace about as long as the postero-lateral, well defined, gently curved, rather irregularly crenulate. Lateral epibranchial tooth distinct.

The epigastric crests are oblique, but their outer end is in the same line with the post-orbital crests; they are separated from the latter by a groove. The post-orbital crests are nearly transverse, almost trenchant except at their outer end, where they are rugose or actually broken up into tubercles; the cervical groove does not cut them.

In the male abdomen the length of the 6th segment is between half and two thirds its greatest breadth, and the 7th segment is not quite as long as broad.

In the external maxillipeds the merus is as long as, or nearly as long as, broad, otherwise the mouth-parts are as in *P. fluviatile*.

Chelipeds a little unequal, their outer surface rugulose, inclining to be granulous along the inner border of the carpus and upper border of the palm; edges of merus crenulate; the usual bicuspid spine is present at the inner angle of the carpus; the fingers gape slightly when closed, and there are some granules at the base of the upper border of the dactylus.

Legs about as long as chelipeds; in the 2nd and 3rd pairs the propodite is more than twice as long as broad.

In the single specimen, a male, the carapace is $1\frac{5}{8}$ inch long, 2 inches broad, and not quite $\frac{5}{8}$ths inch deep.

Distribution: Siam, Cochin China.

$\frac{3613}{7}$. Bangkok. J. Wood-Mason. 1 ♂.

This species does not belong to the fauna of British India, but I include a description of it in this memoir for several reasons of practical utility, and also because by other authors it has been reckoned as Indian.

25. Potamon (Potamon) manii, Rathbun. (Fig. 46.)

Potamon (*Potamon*) *manii*, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 276 (*ubi syn.*), pl. xi., fig. 6.

This species is very like *P. larnaudii*, and Dr de Man, who originally described it, regarded it as a variety of that species.

The following are the differences compared with *P. larnaudii*:—The carapace is distinctly broader (adults being compared), owing to the stronger curve of the antero-lateral borders.

The cervical groove is similar in that it—(*a*) is deep and narrow where it limits the mesogastric lobule; and (*b*) broadens out remarkably beyond this point; and (*c*) does not cut the post-orbital crest; but the expanded part of the groove is deeper, and beyond the expansion the groove is well graven almost up to the lateral epibranchial spine. The comparative difference is well shown in Miss Rathbun's figures.

The anterior part of the mesogastric areola is even narrower.

The sides of the front are less oblique and make a more pronounced angle with the free edge; the edge, again, is more sinuous, and is often, in fact, quite distinctly four-lobed.

The post-orbital crest usually runs clear and sharp into the lateral epibranchial tooth, without breaking into tubercles.

The merus of the external maxillipeds is broader than long.

The legs are decidedly shorter than the chelipeds; in the 2nd and 3rd pairs the propodite is only twice as broad as long.

The fingers of the chelipeds are stouter.

The 7th abdominal segment of the male is as long as broad.

In the largest specimen the carapace is $1\frac{11}{16}$ inch long, $2\frac{5}{16}$ inches broad, and $\frac{13}{16}$ths inch deep.

$\frac{6723}{4}$.	Tavoy.	Museum Collector.	7 ♂, 10 ♀, 3 young.
$\frac{2990\text{-}95}{10}$.	Amherst.	A. R. S. Anderson.	3 ♂, 3 ♀.
$\frac{5435}{10}$.	Dawna Hills, Lower Burma.	N. Annandale.	1 ♂, 2 ♀.
$\frac{5461}{10}$.			3 ♀, one with eggs.
$\frac{5457}{10}$.	Tavoy.	Museum Collector.	8 ♂, 5 ♀.
$\frac{5462}{10}$.	Upper Tennasserim.	J. Wood-Mason.	4 ♂, 1 ♀.
$\frac{5477}{10}$.			1 ♂, 1 ♀, 8 young.
$\frac{5479}{10}$.			1 ♂, 1 ♀.
$\frac{5539}{10}$.			2 ♂, 2 ♀.
$\frac{5480}{10}$.	Hills between Burma and Siam.	Museum Collector.	1 ♂, 15 ♀.
No number.	Upper Tennasserim.	J. Wood-Mason.	4 ♂, 11 young.

The following specimens, which differ in having the antero-lateral borders of the carapace not so strongly arched, and the anterior part of the cervical groove not quite so distinct, must undoubtedly be referred to this species :—

$\frac{6944}{3}$.	Burma.	W. Theobald.	5 ♂, 2 ♀.
$\frac{2737}{7}$.	Tavoy.	Museum Collector.	1 ♀.
$\frac{2430}{10}$.	Tennasserim.	A. R. S. Anderson	1 ♂, 2 young.
$\frac{5454}{10}$.			1 young.
$\frac{5483}{10}$.		J. Wood-Mason.	10 ♂, 12 ♀, 9 young.
$\frac{5508}{10}$.			1 ♂, 1 ♀.
$\frac{5542}{10}$.			1 ♀.

As far as I can make out, *P. manii* is the species which, in India, has been called *P. larnaudii*.

Potamon (Potamon) brevimarginatum, de Man.

Potamon (*Potamon*) *brevimarginatus*, de Man, M. J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 277 (*ubi lit.*), pl. x., fig. 8.

Differs from *P. larnaudii* in the following particulars :—

The cervical groove, which, as in *larnaudii*, does not cut through the post-

orbital crests, but ends vaguely in the rugæ that lie between them and the lateral epibranchial tooth, is deeper graven, so that the gastric region is very clearly delimited from the epibranchial regions throughout.

The epibranchial regions are quite distinctly areolated—(*a*) by an obliquely transverse furrow near the middle; and (*b*) by a sinuous groove which skirts the cervical groove.

The whole frontal region is granulous or rugose; the epigastric crests are more rugose; nearly the anterior half of the gastric region is transversely rugose; all the anterior half of the lateral epibranchial regions is obliquely rugose; and the postero-lateral borders and their vicinity are *abundantly* crossed by rugæ.

The edge of the front is more sinuous, its lateral free angles are also more pronounced.

The antero-lateral borders of the carapace are decidedly shorter than the postero-lateral.

The merus of the external maxillipeds is broader than long.

The chelipeds are more crisply rugose, and the fingers are stouter and heavier.

The 7th abdominal segment of the male is slightly longer than broad, and very blunt.

In the largest specimen (a male) the carapace is $1\frac{3}{16}$ inch long, $1\frac{5}{16}$ inch broad, and $\frac{9}{16}$ths inch deep.

$\frac{3617\text{-}20}{7}$. Sing Karah, Sumatra. Prof. Max Weber. 3 ♂, 1 ♀.

This species also does not belong to the fauna of British India; but as forms which might be regarded as varieties of it occur in Burma, I include a diagnosis of it here.

26. Potamon (Potamon) pruinosum, Alcock. (Fig. 8.)

This species resembles *Potamon larnaudii* more especially in the following particulars:—The cervical groove is deep and distinct where it defines the posterior part of the gastric region; beyond this point it broadens out and becomes shallow; and beyond the expansion it becomes indistinct (but even more indistinct than in *larnaudii*), and is lost in the rugosities of the antero-lateral part of the epibranchial regions without cutting the post-orbital crests. The epibranchial regions are, anteriorly, not well demarcated from the gastric region, nor are they distinctly areolated. The antero-lateral borders of the carapace (measured from the tip of the lateral-epibranchial tooth) are barely as long as the postero-lateral.

On the other hand, it resembles *Potamon brevimarginatum* in the following

particulars :—The frontal region is tuberculous, as is the anterior half of the gastric region and the anterior half of the epibranchial regions; and the transverse rugæ that cross the postero-lateral borders are very abundant. The epigastric crests are very strongly rugulose—the rugæ being transverse. The chelipeds are crisply and abundantly rugose; and their fingers, which are of stout and heavy make, do not gape when closed.

Its own differentiæ are as follows :—The carapace is slightly deeper and more convex. The numerous tubercles of the anterior part of the dorsum of the carapace are very prominent and often have a whitish pearly lustre, as have the rugosities of the epigastric and post-orbital crests. The epigastric crests and the post-orbital crests form a common curve, the convexity of which is *extremely slight*. The edge of the front is slightly sinuous, but the free lateral angles are not pronounced.

The following is a description of the species :—

Carapace deep, its depth being about half its length; decidedly convex fore and aft, solid-looking; its length not quite three-fourths its greatest breadth.

Except posteriorly, the gastric region is badly defined, and except for the very narrow fore-lobe of the mesogastric area, which deeply separates the tumid epigastric crests, this region is not areolated.

Except posteriorly, where it delimits the mesogastric area, the cervical groove is extremely superficial and indistinct.

There is no *distinct* areolation of the epibranchial regions.

The frontal region is thickly beset with small white pearly tubercles, which tend to collect in a pair of transverse swellings like those of *P. pealianum;* the epigastric and post-orbital crests have their edge broken by many elongate, transverse and oblique, white imbricating tubercles; similar tubercles or raised rows of pearly granules cover the anterior half of the epibranchial and gastric regions. The side-walls of the carapace are beset with fine oblique rugæ, which abundantly invade the postero-lateral borders, all the rugæ being very finely beaded. The suborbital lobes and the outer limits of the pterygostomian regions are finely granulous.

The front in the adult is less than a third the greatest breadth of the carapace and is much deflexed; its edge is well defined, almost smooth, and faintly sinuous. The outer orbital tooth is well marked, and is separated from the lower border of the orbit by a broad, shallow gap. The antero-lateral borders are hardly as long as the postero-lateral; they are well defined, finely crenulate, and very gently curved; the lateral epibranchial tooth is distinct.

The epigastric crests, though separated from the post-orbital crests by a fissure, form a continuous and *very slightly* convex curve with them. The post-orbital crests are ragged at their outer end, but they are not distinctly cut by

the cervical groove as they are in all the preceding species except *P. larnaudii* and *brevimarginatum*.

In the male abdomen the length of the 6th segment is between half and two-thirds its greatest breadth; that of the 7th is equal to its greatest breadth.

The antennæ and mouth-parts are normal; the merus of the external maxillipeds is a little broader than long.

The chelipeds are subequal; the outer surface of the merus and carpus is crisply rugulose, the rugæ being elegantly beaded; the outer surface of the palm and the lower part of its inner surface are studded with shiny conical granules, often in pairs; the inner angle of the carpus is produced into the usual bicuspid spine; the fingers are longer than the palm, and they hardly gape when closed.

Legs about as long as the chelipeds; their dactyli are much longer than their propodites, and in the 2nd and 3rd pairs the propodites are two and a half times as long as broad.

In the largest specimen, a female, the carapace is $1\frac{3}{16}$ inch long, $1\frac{9}{16}$ inch broad, and $\frac{10}{16}$ths inch deep.

$\frac{6723}{4}$, $\frac{5488}{10}$.	Tavoy.	Museum Collector.	7 immature ♂, 1 ♀, 12 young. 2 immature ♀.
$\frac{5531}{10}$.	Hills between Burma and Siam.	Donor (?).	1 ♂, 1 ♀ immature.

27. Potamon (Potamon) turgidulimanus, Alcock. (Fig. 9.)

This small species is distinguished by the absence of any gap between the external orbital tooth and the lower border of the orbit. I regard this as a character of some importance, as this gap is almost characteristic of *Potamon*, and its absence is almost characteristic of *Paratelphusa*—not that this species has anything to do with the latter genus. Another character is that the palms, especially that of the larger cheliped, have a fullness or puffiness of the lower part of the outer surface.

The cervical groove and the areolation of the epibranchial regions are almost as distinct as in *brevimarginatum*.

The frontal region, the epigastric and post-orbital crests, and the anterior half of the gastric and epibranchial regions are rugulose as in *brevimarginatum*.

The epigastric crests sometimes form an almost straight line with the post-orbital crests as in *pruinosum*, and sometimes are slightly advanced and oblique.

The antero-lateral borders of the carapace are slightly longer than in *brevimarginatum*.

The chelipeds are sometimes as crisply rugose as those of *brevimarginatum* and *pruinosum*, but sometimes the sculpture looks worn and effaced.

Carapace deepish, decidedly convex fore and aft, its length about three-fourths its greatest breadth, its depth approaching half its length, its anterior third to half is as rugose as that of *brevimarginatum* and *pruinosum*, its areolation is like that of *brevimarginatum* but fainter; the side-walls, suborbital lobes, and pterygostomian regions are abundantly rugose.

Front, in the adult male, one-third the greatest breadth of the carapace, its surface granulous, its edge faintly bilobed and sinuous.

Outer orbital tooth obsolete, merely a callosity; no gap between it and the lower border of the orbit.

Epigastric and post-orbital crests blunt and rugose, forming a single curve, but separated from one another; post-orbital crests not cut by the cervical groove, but not continuous with the lateral epibranchial tooth.

In the male abdomen the length of the 6th segment is between half and two-thirds its greatest breadth, and the 7th segment is as long as broad.

Mouth-parts normal; merus of external maxillipeds broader than long.

Chelipeds unequal, their extensor surface rugose; the palm, especially that of the larger cheliped, is somewhat swollen in its lower outer part, and the fingers, which are shorter than the palm, gape somewhat.

Legs about as long as the chelipeds; edges of propodite and dactylus rather hirsute.

In the largest specimen, a female, the carapace is just over $\frac{3}{4}$ths inch long, just over 1 inch broad, and just over $\frac{3}{8}$ths inch deep. A smaller specimen than this has eggs in its pouch.

Ex $\frac{5477}{10}$.	Upper Tennasserim.	J. Wood-Mason.	6 ♂, 5 ♀.
$\frac{5498}{10}$.			6 ♂, 3 ♀.
$\frac{5553}{10}$.			1 ♀.

Potamon (Potamon) stoliczkanum, Wood-Mason.

Telphusa stoliczkana, Wood-Mason, Journal Asiatic Soc., Bengal, XL., part II., 1871, p. 199, pl. xii., figs. 8-12.
Potamon (*Potamonautes*) *stoliczkanus*, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VII., 1905, p. 187 (*ubi lit.*), not fig. 7, pl. xv., in Tom. VI.

In this species the mandibular palp, as in all the preceding species, is quite simple, not bilobed. The species has no close relations with *P. cunicularis*, *guerini*, and *planatus*, but, as Dr de Man mentions, comes very near *P. larnaudii*.

Carapace slightly convex fore and aft, its length about three-fourths its greatest breadth, its depth somewhat more than two-fifths its length, its surface finely pitted but otherwise remarkably smooth, there being only a few short

obscure wrinkles near the antero-lateral borders and some fine short striations across the postero-lateral borders.

Gastric region well defined, but, except for the furrow-like continuation of the fore-lobe of the mesogastric area, not areolated. Cervical groove distinct but broad and superficial, becoming lost just behind the post-orbital crests. Epibranchial regions not distinctly areolated, but broken by broad ill-defined depressions.

Epigastric crests blunt and wrinkled, continuous with the almost trenchant post-orbital crests; these latter are quite transverse and curve forwards distally to join the lateral epibranchial tooth.

Front, in adult, not much more than one-fourth the greatest breadth of the carapace, moderately deflexed, deeply bilobed, the lobes not making an angle with the orbit. Outer orbital angle well marked, separated from the lower border of the orbit by a gap.

Antero-lateral borders of the carapace not cristiform, rather irregularly crenulate; lateral epibranchial tooth fairly distinct.

In the male abdomen the length of the 6th segment is a little more than half its greatest breadth, and the 7th segment is not quite as long as broad.

The exopodites of the maxillipeds have strong flagella. The merus of the external maxillipeds is a little broader than long.

"The chelipeds are greatly unequal in males and subequal in females; the meropodites are rugose and have a few hairs near the base of the posterior angle; the carpopodites are rugose above, and bear a strong sharp spine in the usual position and beneath it a smaller one; the pincers are multidentate and their arms cross at the extremities."

"The ambulatory legs are very long."

In the largest specimen the carapace is $1\frac{7}{16}$ inch long, $1\frac{1}{16}$ inch broad, and $\frac{10}{16}$ths inch deep.

$\frac{4063}{4}$.	Penang.	F. Stoliczka.	1 ♂, 1 ♀, types of the species.

28. Potamon (Potamon) thagatense, Rathbun. (Fig. 47.)

Potamon (*Potamon*) *thagatensis*, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VI., 1904, p. 296 (*ubi synon.*).

This species (the "*Telphusa stoliczkana*" of de Man) is nearest to *P. stoliczkanum*, Wood-Mason.

The carapace is flat; its length is about three-fourths its greatest breadth, its depth just exceeds two-fifths its length; its surface is pitted, but is otherwise remarkably smooth.

Gastric region well defined by a deep-cut cervical groove which, however, becomes suddenly indistinct just behind the post-orbital crests. Except for the furrow-like continuation of the mesogastric area there is no areolation of the gastric region, but the epibranchial region is very distinctly bisected by an oblique groove.

Epigastric crests sharp, forming a common curve with the trenchant, obliquely-directed post-orbital crests, but separated from them by a short break. The post-orbital crests are continuous with the well-defined lateral epibranchial tooth.

Front, in adults, between one-fourth and one-third the greatest breadth of the carapace, considerably deflexed, its edge remarkably sinuous in four distinct lobes, the outer of which form strongly pronounced angles with the orbits. Upper orbital margin sinuous; outer orbital tooth salient, separated from the lower border of the orbit by a wide notch.

Antero-lateral borders of carapace crenulate, not cristiform; lateral epibranchial tooth distinct.

In the male abdomen the length of the 6th segment is half its greatest breadth, and the 7th segment is hardly as long as broad.

The merus of the external maxillipeds is slightly broader than long. The mandibular palp is simple; the exopodites of all the maxillipeds have a strong flagellum.

Chelipeds of adult male greatly, of female not very greatly, unequal; their surface is pitted, but is otherwise remarkably smooth; inner angle of carpus with the usual bicuspid spine; fingers about as long as palm, those of the larger cheliped gaping when the tips are apposed.

Legs about as long as the smaller cheliped; the dactyli are longer than the propodites; in the 2nd and 3rd pairs the propodites are about twice as long as broad.

In the largest male the carapace is $1\frac{19}{16}$ inch long, $2\frac{1}{16}$ inches broad, and $\frac{11}{16}$ths inch deep.

- $\frac{8180}{6}$. Mergui. Dr J. Anderson. 2 ♂, 1 ♀.

29. Potamon (Potamon), (sp. ?)

A single small, but undoubtedly adult, female from Persia or Baluchistan appears to belong to the *larnaudii* group. The carapace is $\frac{11}{16}$ths inch long and 1 inch broad. It is not any variety of *Potamon fluviatile*, and if it is normal it represents a species of the *larnaudii* group.

$\frac{5472}{10}$. S. Persia or Baluchistan. W. T. Blanford. 1 ♀.

Subgenus II.: Potamiscus, Alcock.

Type: *Potamiscus annandalii.*

In this group or subgenus the exopodite of the external maxillipeds is either non-flagellate or carries only a papillar vestige of a flagellum.

The species may be tabulated as follows:—

1. Epigastric crests distinct; post-orbital crests merged in the rugosities of the carapace; cervical groove quite indistinct anteriorly . . *P. sikkimense.*
2. Epigastric crests distinct; post-orbital crests very broad and blunt, but quite distinct; cervical groove distinct in all its course . . . *P. tumidulum.*
3. Epigastric crests distinct, not or hardly separated from the almost trenchant post-orbital crests; cervical groove indistinct anteriorly . *P. annandalii.*

30. Potamon (Potamiscus) sikkimense, Rathbun. (Fig. 48.)

Potamon (*Geotelphusa*) *sikkimensis*, Mary J. Rathbun, Nouv. Archiv. du Muséum, Paris (4), VII., 1905, p. 219, vi., pl. xviii., fig. 7.

Carapace: length slightly exceeds three-fourths breadth, depth equals half length; decidedly convex fore and aft; its surface abundantly pocked; the frontal, post-frontal, post-orbital, and antero-lateral regions rugose; the side-walls with fine oblique striæ, which also pass across the postero-lateral borders.

Only that part of the cervical groove which delimits the mesogastric area is deep-graven, the rest of the groove delimiting the gastric region from the epibranchial regions being a faint shallow depression. The fore-lobe of the mesogastric areola is well defined, the median groove being prolonged almost to the edge of the front.

Epigastric crests bluntly tumid, rugose; post-orbital crests somewhat confused with the rugosities of the carapace.

Front one-third the greatest breadth of the carapace, declivous, square-cut, but with the angles rounded, very faintly bilobed in a dorsal view only.

The lower border of the orbit runs into the upper border, without gap or tooth, or only a small tooth.

Antero-lateral borders of carapace well defined, irregularly crenulate; the position of the very small epibranchial tooth is chiefly marked by a small break.

In the adult male abdomen the 6th segment is nearly twice as broad as long, and the 7th segment is as long as broad.

Mandibular palp simple. Exopodite of external maxillipeds non-flagellate; the meropodite of these appendages about as long as broad.

Chelipeds a little unequal in the male, almost equal in the adult female; their extensor surface squami-rugose; spine at inner angle of carpus coarse

but sharp, its lower cusp also coarse; fingers quite as long as palm, fluted and pitted, the upper border of the dactylus with some vesiculous granules.

Legs slender; the first two pairs do not reach the tip of the larger cheliped; dactyli longer than their propodites, the latter about twice as long as broad.

In a full-grown female the carapace is $\frac{9}{16}$ths inch long, $\frac{11}{16}$ths inch broad, and $\frac{5}{16}$ths inch deep.

$\frac{1917\text{-}18}{10}$.	Dow Hill, Kurseong.	E. Pegler.	
$\frac{5440}{10}$.	Kurseong, 5000 ft.	Museum Collector.	8 ♂, 5 ♀ (3 with eggs).
$\frac{1919}{10}$.	Kurseong, 4000 to 5000 ft.	E. Barlow.	3 ♂, 2 ♀.
$\frac{6908}{3}$.	Dafla Hills.	Donor (?).	1 ♂.
$\frac{2999}{7}$.	Ajmere, Rajputana.	Sir O. B. St John	1 ♂, 1 ♀.
$\frac{5879}{10}$.	Kurseong, 5000 ft.	N. Annandale.	5 ♂, 1 ♀.

N.B.—The specimens from Ajmere are indistinguishable from those from Kurseong.

31. Potamon (Potamiscus) sikkimense, Rathbun, *var.*

In this variety the epigastric crests are not more prominent, but the post-orbital crests are not so much lost in the rugosities of the carapace. Also the anterior part of the cervical groove, bounding the gastric and epibranchial regions, is more distinct, and, in fact, becomes quite recognisable as a groove where it cuts the post-orbital crests.

$\frac{5444}{10}$.	Sharping, Nepal.	Museum Collector.	15 ♂, 6 ♀.

32. Potamon (Potamiscus) annandalii, Alcock. (Fig. 10.)

This species superficially resembles *Potamon pealianum*, but in addition to other differences has external maxillipeds with a non-flagellate exopodite.

Carapace: length between three-quarters and four-fifths greatest breadth, depth half length, strongly convex fore and aft. The mesogastric area is distinctly defined anteriorly and posteriorly, and the pair of small oval facets between the gastric and cardiac regions is present, but there are no other grooves on the carapace, even the cervical groove being restricted to the curve that delimits the mesogastric area posteriorly. The surface of the carapace is smooth except for some fine pitting, and—just inside the antero-lateral borders—some almost effaced wrinkles; the side-walls have the usual

oblique squamiform markings, and the well-defined suborbital lobes are sparsely rugose.

Front strongly deflexed, less than a third the greatest breadth of the carapace, its edge smooth and slightly sinuous; immediately behind its free edge is a pair of lumpy elevations much like those of *Potamon pealianum*. Upper edge of orbit sinuous, smooth; external orbital tooth distinct but not salient, the notch between it and the lower border of the orbit almost obsolete.

Antero-lateral borders of carapace raised, gently curved, crenulate; epibranchial tooth distinct but obtuse.

Epigastric and post-orbital crests strongly and sharply defined; usually they run an oblique and slightly sinuous course, without break or fissure, from the middle line to the lateral epibranchial tooth, with which they are continuous, but sometimes they are obscurely notched near the line of the inner angle of the orbit, and also near the outer angle of the orbit.

In the male abdomen the 6th segment is twice as broad as long, and the 7th is as long as broad.

Antennular fossæ narrow; 1st (true 2nd) antennal joint short and broad, the succeeding joints overlapped by the front.

Palp of mandible simple. Exopodite of external maxillipeds longer than ischium, without a flagellum or with only a vestige of one; merus of external maxillipeds about as long as broad.

Chelipeds a little unequal; merus with serrulate edges and with squamiform granules on its outer surface; carpus with squamiform wrinkles on its exposed surfaces and small tubercles along its inner edge, and with the usual buttressed spine at its inner angle; upper and outer surface of palm, and base of upper surface of dactylus, studded with small tubercles; palm of larger cheliped nearly as high as long and somewhat inflated; fingers stoutish, fluted and pitted, about as long as palm, not gaping much when closed.

Legs fairly stout, 2nd (longest) pair as long as chelipeds; dactyli longer than their propodites, propodites of 2nd and 3rd pairs more than twice as long as broad.

In the largest female the carapace is 1 inch long, $1\frac{1}{4}$ inch broad, and slightly over $\frac{1}{2}$ inch deep.

$\frac{6595\text{-}6609}{9}$.	Nemotha, Cachar.	J. Wood-Mason.	9 ♂, 6 ♀ (including types)
$\frac{5453}{10}$.	Nemotha, Cachar.	J. Wood-Mason.	1 ♀.

Potamon (Potamiscus?) tumidulum, Alcock.

This species, from Sikkim, has already been described (see p. 43). The flagellum of the exopodite of the external maxillipeds is a mere vestige, and

the post-orbital crests are coarse and blunt without any distinct edge; but in other respects it agrees more nearly with *P. tumidum* and *turgidulum*. More specimens are wanted in order to fix the position of the species.

$\frac{5507}{10}$. Sikkim. J. Wood-Mason. 1 ♂, 2 ♀.

Subgenus III.: Geotelphusa, Stimpson.

Type: *Geotelphusa dehaanii*, Stimpson.

Geotelphusa, Stimpson, Proc. Acad. Nat. Sci., Philad., x., 1858.
Geotelphusa (part), Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 200 (*ubi lit.*).

In *Geotelphusa dehaanii*, which is one of the two species upon which Stimpson founded his genus *Geotelphusa*, the terminal joint of the mandibular palp is simple, the 6th segment of the male abdomen is much broader than long, and the exopodite of the external maxillipeds has a strong flagellum.

Stimpson's diagnosis is "Near Telphusa; post-frontal crest obsolete, antero-lateral margin entire."

Among the species conforming to Stimpson's diagnosis there are: (1) some —like "*Potamon*" *lævе*—that have the terminal joint of the mandibular palp bifurcate and the 6th segment of the male abdomen as long as its distal breadth; (2) others—like *P. sikkimense*—that have the terminal joint of the mandibular palp simple, the 6th segment of the male abdomen much broader than long, and the exopodite of the external maxillipeds non-flagellate; and (3) others still—like *P. dehaanii*—that have the *terminal joint of the mandibular palp simple, the 6th segment of the male abdomen much broader than long, and the exopodite of the external maxillipeds furnished with the usual long flagellum.* To these last it seems well to restrict the name *Geotelphusa*.

The Indian species referable to the subgenus *Geotelphusa* are three in number, namely, *P.* (*G.*) *enode*, Kingsley, which is not represented in the collection; *P.* (*G.*) *adiatretum;* and a small species, which I can not at present characterize, very close to *P.* (*G.*) *adiatretum*.

33. Potamon (Geotelphusa) adiatretum, Alcock. (Fig. 11.)

Very near akin to *Potamon* (*Geotelphusa*) *enode*, Kingsley.

Carapace: length about five-sevenths breadth, depth half length, smooth to the naked eye, but under magnification finely pitted and with a few fine short wrinkles near the lateral margin. Cervical groove present only as a crescent defining the mesogastric area posteriorly. An extremely deep furrow separates the epigastric crests.

Front in adult less than a third the greatest breadth of the carapace; it and

the post-orbital regions are strongly deflexed, the rest of the carapace being nearly flat. In a dorsal view the front is distinctly bilobed; its edge is smooth and its orbital angles are well marked, though its sides are decidedly convergent.

The lower border of the orbit runs flush into the upper border without any gap or any trace of an external orbital tooth.

Antero-lateral margins of carapace short, ill-defined, irregularly crenulate when magnified, running without break from the orbit; there is therefore no trace of a lateral epibranchial tooth.

Epigastric crests distinguishable as low, broad elevations; post-orbital crests vaguely indicated.

In the male abdomen the 6th segment is twice as broad as long, and the 7th segment is a triangle as broad as long.

The mandibular palp is simple. In the external maxillipeds the merus is quadrangular and much broader than long, and the exopodite has a long flagellum.

The chelipeds are a little unequal; their extensor surface is nearly smooth, though faint squamiform markings are visible with a lens; the spine at the inner angle of the carpus, though coarse, is sharp; the fingers are as long as the palm, indistinctly fluted, and have a gap at the base when closed.

The legs are stout and have somewhat hirsute edges; the 2nd (longest) pair are a little shorter than the larger cheliped; the propodites are about twice as long as broad and are slightly shorter than their dactyli.

In an adult female the carapace is $\frac{5}{8}$ths inch long, and $\frac{7}{8}$ths inch broad.

$\frac{6943}{3}$.	Dafla Hills.	H. H. Godwin-Austen.	1 ♂, 1 ♀.
$\frac{4071}{4}$.	Kakhyen Hills.	J. Anderson.	1 ♂.
$\frac{6966}{3}$.	Moulmein.	J. Anderson.	1 ♀ (type).

34. Potamon (Geotelphusa), sp.

This small species, which is represented by a male and female not fully adult, differs from *adiatretum* in the following particulars:—

The carapace is flatter and its anterior portion is abundantly rugulose; the antero-lateral margins are well defined low crests.

The orbital angles of the edge of the front are rounded off.

The epigastric and post-orbital crests are less indistinct.

$\frac{5433}{10}$.	Dafla Hills.	H. H. Godwin-Austen.	1 ♂, 1 ♀.

Subgenus IV.: Acanthotelphusa, Ortmann.

Type: *Acanthotelphusa nilotica* (Edw.).

The distinctive characters of this subgenus are that the antero-lateral borders of the carapace are cut into large teeth or spines, and that the upper border of the merus of the chelipeds bears a subterminal spine. In these particulars it resembles the genus *Paratelphusa* (type: *Paratelphusa tridentata*, Edw.), but it differs from *Paratelphusa*, and agrees with *Potamon*, in the form of the mandibular palp and of the adult male abdomen.

The species may be tabulated as follows:—

I. Exposed surface of ischium of external maxillipeds longitudinally grooved:—	
i. Antero-lateral borders of carapace cut into four teeth or spines, exclusive of the external orbital tooth:—	
1. The teeth of the antero-lateral borders are broad acuminate lobes; carapace much broader than long, very strongly and evenly convex, very smooth, the cervical groove finely and faintly sketched; chelipeds markedly unequal in both sexes	*P. dayanum.*
2. The teeth of the antero-lateral borders are salient spines; carapace moderately convex, its surface uneven:—	
a. Chelipeds slightly unequal in adult female (and probably in adult male)	*P. wood-masoni* = (*edwardsi*, No. 2).
b. Chelipeds markedly unequal in both sexes; surface of carapace broadly corrugated and tomentose . .	*P. fungosum.*
ii. Antero-lateral borders of carapace cut into three teeth or spines; surface of carapace broadly corrugated and tomentose; chelipeds markedly unequal in male only . . .	*P. fœx.*
II. Exposed surface of ischium of external maxillipeds *not* longitudinally grooved:—	
i. Antero-lateral borders of carapace cut into four teeth or spines, not including the external orbital tooth:—	
1. Carapace flat, the three posterior marginal teeth broad .	*P. crenuliferum.*
2. Carapace convex, the three posterior marginal teeth spine-like	*P. calvum.*
ii. Antero-lateral borders of carapace cut into three teeth or spines.	*P. martensi.*

35. Potamon (Acanthotelphusa) dayanum, Wood-Mason. (Fig. 49.)

Paratelphusa dayana, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., part II., 1871, p. 192, pl. xi.
Potamon (*Paratelphusa*) *dayanus*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 259, pl. xii., fig. 7 (*ubi lit.*).

Carapace broad, very strongly and evenly convex, smooth; its length about five-sevenths its greatest breadth, its depth more than half its length. Cervical groove fine and superficial, but distinct enough; it cuts the post-orbital crests at a point in line with the inner angle of the external orbital tooth. The tip of the fore-lobe of the mesogastric areola and its groove-like prolonga-

tion between the epigastric crests form the only distinct areolation of the carapace.

Front much deflexed, about one-third the greatest breadth of the carapace in the adult, its sides convergent, its edge well defined, almost smooth, and broadly and obscurely bilobed. Lower margin of orbit sinuous, crenulate, separated from the external orbital tooth by a gap.

Antero-lateral borders of carapace convex, longer than the postero-lateral borders, well-defined, cut into four broad acuminate teeth (exclusive of the orbital tooth). Some fine, short, ripple-like markings cross the postero-lateral borders.

Epigastric crests blunt, overlapping and slightly in advance of the post-orbital crests. Post-orbital crests low but fairly sharp, cut by the cervical groove into two portions, of which the inner is nearly transverse and the outer is obliquely convex.

In the abdomen of the adult male the 6th segment is twice as broad as long, and the 7th is not quite as long as broad.

The mandibular palp is simple like that of *Potamon*, and quite different from that of the type species of the genus *Paratelphusa*.

All the maxillipeds have strongly flagellate exopodites. In the external maxillipeds the ischium is longitudinally grooved, and the merus is subquadrangular and broader than long.

Chelipeds very unequal, most so in the adult male; their surface is practically smooth, though with a lens pittings and faint reticular markings are visible; the subterminal spine of the upper border of the merus is strong; the strong spine at the inner angle of the carpus has a small accessory cusp at its base; the fingers have strong, almost molariform teeth. In the smaller cheliped the fingers are much longer than the palm and do not gape; in the larger cheliped they are a little longer than palm and gape when the tips are apposed, especially in the adult male.

Legs stout, a little shorter than the smaller cheliped; the propodites are more than twice as long as broad, and are slightly shorter than their dactyli.

In an adult male the carapace is $1\frac{9}{16}$ inch long, $2\frac{3}{16}$ inches broad, and $\frac{14}{16}$ths inch deep.

$\frac{6897}{3}$.	Prome.	J. Anderson.	1 ♂, 1 ♀ (types).
$\frac{6940}{3}$.	Kakhyen Hills.	J. Anderson.	1 ♂, 3 ♀.
$\frac{4006}{4}$.	Mandalay.	F. Day.	1 ♂.
$\frac{4070}{4}$.	Burma.	W. Theobald.	3 ♂, 2 ♀.
$\frac{4072}{4}$.	Prome.	W. Theobald.	5 ♂.

$\frac{4080}{4}$.	Mandalay.	J. Anderson.	1 ♂, 1 ♀.
$\frac{4107}{4}$.	Mandalay.	J. Wood-Mason.	1 ♂, 1 ♀.
$\frac{4108}{4}$.	Prome.	J. Anderson.	5 ♂.
$\frac{3373\text{-}3397}{9}$.	Prome.	E. W. Oates.	Many.
$\frac{5468}{10}$.	Mandalay.	N. Annandale.	4 ♂, 1 ♀.

36. Potamon (Acanthotelphusa) wood-masoni, Rathbun. (Fig. 50.)

Paratelphusa edwardsi, Wood-Mason, Proc. Asiatic Soc., Bengal, 1875, p. 231, and Ann. Mag. Nat. Hist. (4), XVII., 1876, pp. 121, 122.

Potamon (*Paratelphusa*) *wood-masoni*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 262 (*ubi synon.*), pl. xii., fig. 12.

Miss Rathbun, assuming *Paratelphusa* to be a subgenus of *Potamon*, and being confronted with the difficulty that another species (of another subgenus of *Potamon*) had already a right to the name *edwardsi*, changed the name of the species now under consideration to *wood-masoni*.

Miss Rathbun's procedure is not affected by the fact that *Paratelphusa* (type: *P. tridentata*, Edw.) is a quite distinct genus, because "Paratelphusa" *edwardsi* is still included, as a species of the subgenus *Acanthotelphusa*, in the genus *Potamon*.

If *Acanthotelphusa* should at any time be separated from *Potamon*, the name *edwardsi* may be resumed for the present species.

Carapace fairly broad, convex, but with an uneven surface; its length is from three-fourths to seven-eighths its greatest breadth (measured to base of marginal spines), its depth is about half its length. The frontal region and the antero-lateral corners of the carapace are more or less granulous, and there are many fine short wrinkles dorsal of the fairly well-defined postero-lateral borders.

Cervical groove deep-graven where it defines the posterior lobe of the mesogastric area, and fairly clean-cut where it breaks the post-orbital crests (at the usual point in line with the inner angle of the orbital tooth), but elsewhere broad and superficial.

All the regions of the carapace—gastric, branchial, cardiac, and the paired facets of the præ-cardiac—are well marked out, and the mesogastric areola is defined in much of its extent.

Front in the adult much more than one-third the greatest breadth of the carapace (measured to base of marginal spines), little deflexed; its sides convergent and dorsally convex; its edge rather sharp, almost smooth, and very obscurely bilobed. Orbits broad, the lower border sinuous, crenulate, and separated from the external orbital tooth by a gap; near the middle of the upper border there is a faint break.

Antero-lateral borders of carapace cut into four claw-like spines (exclusive of the orbital tooth), shorter than the postero-lateral borders.

Epigastric crests rugulose, well in advance of the post-orbital crests; the latter are fairly sharp, but usually become broken and more or less indistinct beyond the points where they are cut or met by the cervical groove.

Sixth abdominal segment of adult male not quite twice as broad as long, 7th segment not quite as long as broad.

Antennal fossæ and epistome a good deal overshadowed by the front. All the mouth-parts are as in *P. dayanum*, the only noteworthy difference being in the shape of the merus of the external maxillipeds, which, though broad, is rudely subtriangular rather than subquadrangular.

Chelipeds in the adult female almost equal (as they also are in the only adult male of the collection, which, however, as it possesses, in addition to well-formed male appendages and ducts, large porous tubercles in the position of the female openings, may be abnormal). The chelipeds are rather slender and are shorter than the legs; their surface is almost smooth, though there is some much-worn squamiform sculpture on the carpus and upper surface of the palm; there is a subterminal spine on the upper border of the merus, and a strong spine—with a fullness, not a distinct cusp, at its base—at the inner angle of the carpus; the fingers are slender, are longer than the palm, and do not gape much.

Legs stout, the edges of the three terminal joints are thickly clothed with a short scrubby fur, which also tends to invade the surfaces; the propodites are more than twice as broad as long and are rather shorter than their dactyli.

In an adult female the carapace is $1\frac{1}{16}$ inch long, $2\frac{1}{16}$ inches broad, and $\frac{11}{16}$ths inch deep.

$\frac{6888}{3}$.	Garo Hills.	H. Williamson.	1 ♀ (type).
$\frac{6933}{3}$.	Pegu.	S. Kurz.	4 young.
$\frac{4180}{4}$.	Cachar.	E. B. Baker.	1 ♀.
$\frac{3398}{9}$.	Sibsagar, Assam.	S. E. Peal.	1 ♂.
$\frac{3400\text{-}01}{9}$.	Moulmein.	Captain Hood.	2 ♂.
$\frac{5491}{10}$.	Tipperah.	J. R. Adie.	1 ♀.
$\frac{5501}{10}$.			1 ♂, 2 ♀.
Ex $\frac{5528}{10}$.	Narail, Jessore.	J. Wood-Mason and A. Alcock.	1 ♂.

37. Potamon (Acanthotelphusa) fungosum, Alcock. (Fig. 12.)

The whole animal is covered with a very short, dirty, spongy fur. The species is closely related to *P. fœæ* de Man.

Carapace slightly convex, nearly as long as broad, its depth less than half its length, its surface broadly corrugated and lumpy, and much pitted when denuded.

Cervical groove well graven only where it defines the mesogastric area posteriorly, elsewhere very broad and superficial, and somewhat vague.

The regions are all well defined, as well as the pair of small oval facets between the gastric and cardiac regions. In the gastric region the mesogastric area can be made out in most of its extent, and the area on either side of it, behind the post-orbital crests, is broken into one or two low broad elevations. In each epibranchial region there are two broad transverse corrugations, one behind the other, and two small lumpy facets inside of them.

Front hardly deflexed, more than two-fifths the greatest breadth of the carapace (in the adult), its sides convergent and dorsally tumid, its free edge sharp, obscurely bilobed, and much overshadowing the epistome.

Orbits wide, the lower border crenulate and separated from the external orbital tooth by a gap, the upper border broken near the middle by a slight crease.

Antero-lateral borders of carapace about as long as the postero-lateral, cut into four broad salient spines, exclusive of the outer orbital tooth; postero-lateral borders defined in all their extent by a sharp granulous ridge.

Epigastric crests broad and blunt, much separated from and in advance of the post-orbital crests; post-orbital crests consisting of a sharp transverse tubercle not extending beyond middle line of orbit, and of one or two minute tubercles lying between this and the anterior marginal spine; these small tubercles may sometimes be absent.

In the male abdomen the 6th segment is nearly twice as broad as long, and the 7th is a broad-based, very blunt triangle nearly as long as broad.

All the mouth-parts are as in *P. dayanum.*

Chelipeds in both sexes markedly unequal, and, when completely denuded, practically smooth, so much effaced in appearance is the superficial sculpture; upper border of merus with a subterminal spine; carpus with upper surface even, and with the usual spine at the inner angle. In the smaller cheliped the fingers are much longer than the palm, and do not gape when closed; in the larger cheliped the fingers are not much longer than the palm, have molariform teeth, and gape much when the tips are apposed.

Legs somewhat slender, a little longer than the smaller cheliped; the propodites are more than twice as long as broad, and are not so long as the slender dactyli.

In an adult female the carapace is $1\frac{3}{16}$ inch long, $1\frac{5}{16}$ inch in greatest breadth, and $\frac{8}{16}$ths inch deep; adult males are a little smaller.

Notwithstanding the more numerous marginal teeth, I am inclined to regard this *Potamon* as only a variety of de Man's *P. feæ*.

$\frac{6611\text{-}6645}{9}$.	Darband Pass, Cachar.	J. Wood-Mason.	13 ♂, 17 ♀, and numerous young.
$\frac{5540}{10}$.	Cachar.	E. B. Baker.	1 ♂, 2 ♀.

38. Potamon (Acanthotelphusa) feæ, de Man. (Fig. 51.)

Paratelphusa feæ, de Man, Ann. Mus. Genoa (2), XIX., 1898, p. 393, pl. iv., fig. 3.
Potamon (*Paratelphusa*) *feæ*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 241.

This species, described by de Man from the Upper Irrawaddy, differs from *P. fungosum* only in the following particulars:—

The carapace is flatter, but the broad corrugations of the epibranchial regions are stronger and more tumid.

The antero-lateral margins of the carapace are cut into three teeth, exclusive of the outer orbital tooth, and the foremost one of these is broad and blunt.

The post-orbital crests are even shorter, being reduced to a small tubercle lying behind the inner angle of either orbit.

The gap between the lower margin of the orbit and the outer orbital tooth is less distinct.

In females which seem to be adult the chelipeds may be subequal. In the male the fingers of the enlarged cheliped are not quite as long as the palm.

The carapace of an adult male is $\frac{13}{16}$ths inch long, $\frac{13}{16}$ths inch broad, and $\frac{5}{16}$ths inch deep.

$\frac{4060}{4}$.	Suddea, Assam.	F. Day.	2 ♀.
$\frac{4065}{4}$.	Hill stream near Harmutti.	H. H. Godwin-Austen.	1 ♀.
$\frac{4066}{4}$.	Dafla Hills.	H. H. Godwin-Austen.	1 ♂.

39. Potamon (Acanthotelphusa) crenuliferum, Wood-Mason. (Fig. 13.)

Paratelphusa crenulifera, Wood-Mason, P. A. S. B., 1875, p. 231; and Ann. Mag. Nat. Hist. (4), XVIII., 1876, pp. 121, 122.
Potamon (*Paratelphusa*) *crenulifer*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 261, pl. xii., fig. 11 (*ubi lit.*).

Carapace squarish, little convex, its surface smooth, but finely pitted and uniformly and minutely granular under a lens; its length over four-fifths its greatest breadth, its depth less than half its length.

Cervical groove well graven only where it defines the mesogastric area, elsewhere broad and very superficial. All the regions are indicated, but rather

faintly. The tip of the mesogastric area can just be made out behind the groove separating the epigastric crests.

Front hardly deflexed, about two-fifths the greatest breadth of the carapace in the adult, its sides are convergent and slightly convex dorsally, its edge is crenulate and faintly sinuous, and overshadows the epistome a good deal.

Orbits wide, with crenulate margins; a gap between the lower margin and the outer orbital tooth.

Antero-lateral borders of carapace almost as long as the postero-lateral, cut into four broad sharp teeth (exclusive of the orbital tooth), the edges of some of which are crenulate.

Epigastric crests low, slightly oblique, separated from and slightly in advance of the post-orbital crests; post-orbital crests low but sharpish, straight and distinct as far as the point (inner limit of orbital tooth), where the indistinct cervical groove meets them, and then either disappearing or becoming extremely faint as they curve forwards towards the anterior marginal tooth.

In the male abdomen the 6th segment is about twice as broad as long, and the 7th is nearly as long as broad.

All the mouth-parts are as in *P. dayanum* except that the outer surface of the ischium of the external maxillipeds is not longitudinally grooved.

Chelipeds unequal in both sexes, very much so in old males. Their surface is practically smooth. Merus with the usual subterminal spine on its upper border; upper surface of carpus sometimes with a dimple; the spine at the inner angle of the carpus has only a trace of a cusp at its base. In the smaller cheliped the fingers are much longer than the palm and do not gape; in the larger cheliped they are little longer than the palm, have molariform teeth, and gape when closed—widely so in the adult male.

Legs about as long as the smaller cheliped; in the three terminal joints one or both edges are clothed with a thick spongy fur; the longer propodites are more than twice as long as broad.

In a large male the carapace is $1\frac{9}{16}$ inch long, $1\frac{13}{16}$ inch broad, and $\frac{11}{16}$ths inch deep.

$\frac{6889}{3}$. $\frac{4073}{4}$.	Pegu Yoma.	W. Theobald.	1 ♂ (type). 6 ♂, 1 ♀.

40. Potamon (Acanthotelphusa) crenuliferum, var. floccosum.

In this small variety the carapace is more convex than in the type, and is closely beset with little isolated tufts of down. In all other respects it agrees with the type.

$\frac{6905}{3}$.	Pegu.	S. Kurz.	8 ♂, 7 ♀ (all immature).

41. Potamon (Acanthotelphusa) calvum, Alcock. (Fig. 14.)

This species is best defined by comparison with *P. crenuliferum*, from which it differs only in the following particulars:—

The carapace is suborbicular in outline and is convex in all directions; all its regions are better defined.

The front is more prominent, overshadows the epistome more, and has its edge broadly bilobed.

The anterior marginal tooth of the carapace is separated from the outer orbital tooth by a wider gap, and in the gap there is usually a bead-like tubercle.

The three posterior marginal teeth are spines, not broad teeth.

The epigastric crests are more tumid and more advanced, the post-orbital crests are sinuous.

The legs, though otherwise similar, are slenderer.

In a large specimen the carapace is $1\frac{5}{16}$ inch long, $1\frac{8}{16}$ inch broad, and $\frac{9}{16}$ths inch deep.

$\frac{5520}{10}$, $\frac{5530}{10}$. Upper Tennaserim. J. Wood-Mason. { 10 ♂, 8 ♀ (including types).

Although it looks so different, I am strongly inclined to regard this species as merely a race of *P. crenuliferum*.

42. Potamon (Acanthotelphusa) martensi, Wood-Mason. (Fig. 52.)

Paratelphusa martensi, Wood-Mason, P. A. S. B., 1875, p. 230; and Ann. Mag. Nat. Hist. (4), XVII., 1876, pp. 121, 122.

Potamon (*Paratelphusa*) *martensi*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 258, pl. xii., fig. 9 (*ubi lit.*).

Carapace squarish, convex, its surface uneven but smooth, except for some fine, short, faintish ripples near the postero-lateral borders; its length about three-quarters its greatest breadth, its depth half its length.

Cervical groove well graven only where it defines the mesogastric area, elsewhere superficial and very broad. All the regions are distinguishable, and the small pair of præcardiac facets are very distinct. The epibranchial regions are transversely humped. The tip of the mesogastric area can only just be discerned behind the shallow groove that separates the epigastric crests.

Front moderately declivous, nearly two-fifths the greatest breadth of the carapace in the adult, with convergent, slightly tumid sides, and broadly bilobed edge. Upper border of orbit creased near the middle; lower border separated from the outer orbital tooth by a gap.

Antero-lateral borders of carapace about as long as the postero-lateral,

cut into three teeth (exclusive of the orbital angle), of which the anterior is broad and the two posterior are claw-like. Postero-lateral borders defined in all their extent.

Epigastric and post-orbital crests distinct enough, but low and blunt, the former well in advance of the latter, the latter sometimes passing to the base of the anterior epibranchial spine, but usually becoming indistinct and broken, or even obsolete, beyond the point of contact with the cervical groove.

In the male abdomen the 6th segment is about twice as broad as long, and the 7th is hardly as long as broad.

Except that the outer surface of the ischium of the external maxillipeds is not longitudinally grooved, the mouth-parts are as in *P. dayanum*.

Chelipeds very unequal in both sexes, but most so in the adult male; their surface is practically smooth; the usual spine is present near the far end of the upper border of the merus and at the inner angle of the carpus, the latter being without any accessory cusp at base; the fingers are longer than the palm; in the smaller cheliped they do not gape, but in the larger cheliped (which bears molariform teeth) they gape much, particularly in old males.

Legs about as long as the smaller cheliped, rather slender; the three terminal joints are a good deal furred, especially at the edges; the longer propodites are more than twice as long as broad, and are almost as long as their dactyli.

In a large adult the carapace is $1\frac{2}{16}$ inch long, $1\frac{6}{16}$ inch broad, and $\frac{12}{16}$ths inch deep.

$\frac{4061}{4}$.	Hazrapur, Jessore.	J. Wood-Mason.	2 ♂, 12 ♀.
$\frac{4068}{4}$.	Roorkee.	F. Day.	4 ♂, 3 ♀.
$\frac{4069}{4}$.	Purnea.	Museum Collector.	3 ♂, 2 ♀.
$\frac{3137}{5}$.	Hazrapur, Jessore.	J. Wood-Mason.	1 ♂, 6 ♀.
$\frac{7796\text{-}7807}{9}$.	Darbhanga.	Miss Nora Coates.	3 ♂, 6 ♀.
$\frac{5533}{10}$.	Barnagur, near Calcutta.	A. Alcock.	1 ♂, 1 ♀.
$\frac{5534}{10}$.	Santipore, near Calcutta.	A. Alcock.	4 ♂, 1 ♀.
$\frac{5545}{10}$.	Kissengunj.	A. Alcock.	2 ♂, 3 ♀.
$\frac{5548}{10}$.	Mangura, Jessore.	J. Wood-Mason and A. Alcock.	2 ♂, 1 ♀.
$\frac{5445}{10}$.	Lucknow.	Museum Collector.	1 ♀.
$\frac{5446}{10}$.	Abjulgar, Bijnor.	Museum Collector.	1 ♂, 2 ♀.

Subfamily 2.—GECARCINUCINÆ.

Genus II.—Paratelphusa, Edw.

Type: *Paratelphusa tridentata*, Edw.

Paratelphusa, Milne Edwards, Ann. Sci. Nat. Zool. (3), XX., 1853, p. 213.

The genus *Paratelphusa* differs from the genus *Potamon* only in the following particulars:—

(1) It is unusual for the abdomen of the *adult* male to be regularly triangular; it is far more usual for its distal half to be narrowed, the narrowing beginning suddenly at the 5th or 6th segment. Whether this contraction is marked or not, the 6th segment is never broad, its length almost always being equal to, and not unseldom exceeding, its distal breadth; and the 7th segment is never broadly triangular, but is narrowly semi-elliptical, or tongue-shaped, or at least elongate.

(2) The mandibular palp is of a peculiar pattern; the first two joints are not separately distinguishable—they certainly have no movement independent of one another; and the terminal joint is divided from the base into two lobes —a dorsal and a ventral. The dorsal lobe, which, in repose, lies behind the incisor process of the mandible, is falciform and corresponds with the entire terminal joint of *Potamon*. The ventral lobe, which, in repose, overlaps the incisor process of the mandible, is a broad oval plate, and corresponds with a tuft of hairs that *sometimes* occurs in *Potamon*.

(3) It is not uncommon, though not by any means the rule, for the edges of the meropodites of the external maxillipeds to fall conspicuously short of the edge of the epistome, so as sometimes even to leave the siphon-plate of the endopodite of the 1st maxillipeds slightly exposed: this is a step towards the condition of the parts in *Gecarcinucus*.

(4) It is unusual for any distinct gap to exist between the lower border and the outer-upper angle of the orbit.

It is impossible from the literature alone to determine the incidence of this genus. As regards Indian species, all that can be said is that the genus, as here defined, includes, *inter alia*, a selection from the subgenera *Potamon*, *Potamonautes*, *Geotelphusa*, and *Paratelphusa* of Miss Rathbun's great monograph. The type of the genus is *Paratelphusa tridentata*, Edw.

The Indian species of this large genus may be arranged in six groups, to which, perhaps, the name of subgenera may be attached. A seventh section is not a subgenus, but includes aberrant members of two of the other groups

which, to facilitate the work of identification, must be shown separately in the following table :—

I. A spine near the far end of the upper border of the merus of the chelipeds . . . . . PARATELPHUSA.

II. No such spine :—

A. Tips of fingers of chelæ sharp :—

i. Epigastric and post-orbital crests distinct and prominent :—

1. Epigastric crests either in unbroken continuity with the post-orbital crests on either side of the mesogastric groove, or almost in line with and more or less distinctly (or more or less indistinctly) separated from them ; exopodites of external maxillipeds with a strong plumose flagellum . . . . . BARYTELPHUSA.

2. Epigastric crests in advance of and distinctly separated from (sometimes overlapping) the post-orbital crests :—

a. Exopodites of external maxillipeds with a strong plumose flagellum . . . . . OZIOTELPHUSA.

b. Exopodites of external maxillipeds non-flagellate in all but one species, and in that species inconstant . . . . . PHRICOTELPHUSA.

ii. Epigastric and post-orbital crests not prominent, more or less indistinct, sometimes almost disappearing :—

1. Exopodites of external maxillipeds flagellate . LIOTELPHUSA.

2. Exopodites of external maxillipeds non-flagellate . GLOBITELPHUSA.

B. Tips of fingers broad and spooned :—

i. Epigastric and post-orbital crests sharp and prominent ; exopodites of external maxillipeds strongly flagellate . *Paratelphusa blanfordi.*

ii. Epigastric, etc., crests almost obsolete ; exopodites of external maxillipeds non-flagellate . . . *Globitelphusa pilosipes.*

Subgenus I.—PARATELPHUSA, Edw.

Type : *Paratelphusa tridentata*, Edw.

The merus of the chelipeds has, usually (*P. blanfordi* is the only Indian exception), a subterminal spine or sharp tubercle on its upper border.

The antero-lateral borders are usually (*P. blanfordi* and *P. spinigera* are the only Indian exceptions) armed with either large spines, or a broad lobe between the orbit and the lateral epibranchial spine.

The epigastric and post-orbital crests are prominent. (In the Indian species the former are *not* continuous with the latter.)

The exopodite of the external maxillipeds carries a long, plumose flagellum.

The species are of moderate size : *P. spinigera* grows large : none is quite small ; in colour they are usually brown, sometimes very dark.

The species of *Paratelphusa* may be tabulated as follows :—

I. A subterminal spine or tubercle on the upper border of the merus of the chelipeds; fingers sharp pointed :—
   i. No large spines or teeth or lobes between the orbital angle and the lateral epibranchial spine . . . . . *P. spinigera.*
   ii. A broad laminar lobe between the outer orbital angle and the lateral epibranchial spine . . . . . *P. trilobata.*
   iii. Three large spines on the antero-lateral border of the carapace behind the outer orbital tooth; 6th segment of abdomen of adult male contracted at base :—
      1. "Cervical" groove indistinct; *5th* segment of male abdomen short and broad (length = half proximal breadth) . . *P. sinensis.*
      2. "Cervical" groove distinct; *5th* segment of male abdomen elongate (length nearly = proximal and exceeds distal breadth) . *P. grayi.*

II. No subterminal spine or tubercle on the upper border of the merus of the chelipeds; no large spines or teeth between the outer orbital angle and the lateral epibranchial spine; fingers blunt and spooned at tip . . *P. blanfordi.*

1. Paratelphusa (Paratelphusa) spinigera, Wood-Mason. (Fig. 53.)

Telphusa (*Paratelphusa*) *spinigera*, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., pt. 2, 1871, p. 194, pl. xii., figs. 1-4.

Potamon (*Paratelphusa*) *spiniger*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 231 (*ubi lit.*), pl. xvii., fig. 1.

Carapace broad, convex, its length about two-thirds its greatest breadth, its depth about half its length; its surface, except for some very fine ripples at the postero-lateral borders, is smooth and sometimes almost polished.

"Cervical" groove deep, running towards the outer ends of the post-orbital crests, but becoming superficial and quite indistinct just behind them. All the regions are distinct and individually tumid. A dimpled oval facet is marked off in the gastro-cardiac angle of either epibranchial region, and between them are two small, somewhat sunken, oval præcardiac facets. The post-frontal mesogastric groove is well marked.

Front in the adult about one-third the greatest breadth of the carapace, its sides strongly convergent; it is little declivous up to its sharp free edge, which is formed more distinctly than usual (as in *P. hydrodromus*) by the knee of the bend that turns in to make the antennular septum and the eave of the antennular fossæ.

Orbits small, with a very wide antennal gap. External orbital angle broad, prominent beyond and discontinuous with the lower border of the orbit, but not separated from the latter by a distinct notch.

Antero-lateral borders of carapace well arched, longer than the postero-lateral, sharp, indistinctly crenulate or almost entire; the acute, prominent epibranchial spine is placed very far back.

Epigastric crests prominent, with the anterior surface rugose, overlapping and slightly in advance of the post-orbital crests; the latter are thin, trenchant,

and sinuous, and gradually become indistinct beyond the point where the cervical groove approaches them.

Abdomen of adult male a broad-based triangle in outline; 6th segment with concave sides; its length exceeds its distal and equals its proximal breadth; 7th segment longer than broad, broadly rounded anteriorly.

Mandibular palp as described in the diagnosis of the genus.

Exopodites of all the maxillipeds with a strong, plumose flagellum. In the external maxillipeds the exopodite is longer than the ischium; the ischium is longitudinally grooved near the inner edge; and the merus is a lot broader than long, and has an oblique anterior edge.

Chelipeds very unequal in both sexes, longer in the male than in the female; their surface, to the naked eye, is smooth, sometimes almost polished. The spine near the end of the upper border of the merus is distinct and usually acute; that at the inner angle of the carpus is strong; the fingers are moderately broad, they are strong and sharp pointed, and their tips are inclined to cross; the dactylus is longer than the palm. In the smaller cheliped the fingers are not much bent, and so do not gape much when closed; one tooth in the fixed finger may be enlarged, but there is no very marked inequality in the teeth of the dactylus. In the larger cheliped the dactylus (especially of the male) is much bent, and there is a large molar near its base and usually a second enlarged tooth beyond its middle; while in the fixed finger there is a very much enlarged molar or double tooth not far from the base.

Legs stout, not as long as the chelipeds in either sex; dactyli strong, longer than the propodites; the longer propodites are about thrice as long as broad.

In a large male the carapace is $1\frac{7}{8}$ inch long, $2\frac{9}{16}$ inches broad, and 1 inch deep, and the larger hand (fingers included) is $2\frac{7}{8}$ inches long, the extreme length of the dactylus being 2 inches. In a large female the carapace is $1\frac{3}{4}$ inch long, $2\frac{3}{8}$ inches broad, and 1 inch deep, and the larger hand is $1\frac{5}{8}$ inch long, the extreme length of the dactylus being $1\frac{1}{4}$ inch.

Outside the limits of the subgenus the nearest relatives of this species seem to be *P. hydrodromus* and *P. bouvieri*.

$\frac{4016}{4}$.	Naraïl, Jessore.	J. Wood-Mason.	1 ♀.
$\frac{4035}{4}$.	Sylhet.	E. B. Baker.	3 ♂, 1 ♀.
$\frac{4039}{4}$.	Saharanpur.	J. Wood-Mason.	8 ♂, 5 ♀.
$\frac{4116}{4}$.	Calcutta.	J. Wood-Mason.	7 ♂, 6 ♀.
$\frac{3131}{5}$.	Karáchi.	Karáchi Museum.	1 ♀.
$\frac{3172}{5}$.	Locality not recorded.	Karáchi Museum.	1 ♀.

$\frac{3399}{9}$.	Hardwar.	J. Wood-Mason.	1 ♀.
$\frac{6610}{9}$.	Balaganj, Cachar.	J. Wood-Mason.	1 ♂.
$\frac{7808}{9}$.	Darbhanga.	Miss Nora Coates.	1 ♂.
$\frac{3168}{10}$.	Tipperah.	J. R. Adie.	1 ♀.
$\frac{4557\text{-}8}{10}$.	Calcutta.	F. Finn.	3 ♂, 2 ♀.
$\frac{5460}{10}$.	Tipperah.	J. R. Adie.	1 ♂.
$\frac{5465}{10}$.	Kissenganj.	A. Alcock.	13 ♂, 14 ♀.
$\frac{5466\text{-}7}{10}$.	Rájsháhi.	N. Annandale.	26 ♂, 38 ♀.
$\frac{5469}{10}$.	Calcutta.	G. H. B. Lord.	2 ♀.
$\frac{5521}{10}$.	Khewrah Gorge, Jhelum District, 2000 ft.	No donor recorded.	1 ♀.
$\frac{5528}{10}$.	Narail, Jessore.	J. Wood-Mason and A. Alcock.	5 ♂, 2 ♀.
$\frac{5529}{10}$.	Mangura, Jessore.		10 ♂, 4 ♀.
$\frac{5530}{10}$.	Barnagore, near Calcutta.	A. Alcock.	1 ♂.
$\frac{5558}{10}$.	Safed-bein Canal, Jullunder District.	J. Stephenson.	1 ♂, 9 ♀.
$\frac{5715}{10}$.	Sur Lake, Puri District.	N. Annandale.	2 ♂, 3 ♀.

2. Paratelphusa (Paratelphusa) trilobata, Alcock. (Fig. 15.)

Having only one specimen, I hesitate to characterize this species, although it is quite clearly something unusual. It resembles *P. spinigera*, but differs in the following particulars:—

The carapace is flatter, its depth being less than half its length, and the cervical groove is much broader. The posterior boundary of the epibranchial regions is much better defined on the dorsum of the carapace.

The antero-lateral border of the carapace is produced as a large, broad, laminar lobe between the external orbital tooth and the acute epibranchial spine.

The spine of the upper border of the merus of the chelipeds is blunt—more a tubercle than a spine.

In an adult female the carapace is 1 inch long, $1\frac{5}{16}$ inch broad, and $\frac{7}{16}$ths inch deep.

$\frac{6969}{3}$.	Sibsagar, Assam.	S. E. Peal.	1 ♀ (type).

3. Paratelphusa (Paratelphusa) blanfordi, Alcock. (Fig. 16.)

This species is an aberrant member of the subgenus, as it has no spine on the upper border of the merus of the chelipeds and no large spines on the antero-lateral borders of the carapace between the external orbital tooth and the lateral epibranchial spine. Added to this it has peculiar chelæ, the tips of the fingers being broad and hollowed *en cuillère*.

Notwithstanding these peculiarities, it is undoubtedly nearer to *P. spinigera* than to any other species. It has nothing whatever to do with *Paratelphusa spinescens*, Calman, which de Man has made the type of a new subgenus, *Parapotamon;* that species has a simple mandibular palp, like *Potamon*, and must be ranged alongside *Acanthotelphusa*.

Carapace flat, its length a little over three-fourths its greatest breadth, its depth a good deal less than half its length, its surface, to the naked eye, smooth, with some short and very fine oblique wrinkles at the postero-lateral borders.

Cervical groove deep, very broad, running towards the much posterior epibranchial spine, but becoming superficial and almost disappearing before reaching it.

Regions distinct; in the gastro-cardiac angle of either epibranchial region there is an irregular, sometimes indistinct, facet, and between these, two small indistinct præcardiac facets. Post-frontal mesogastric groove deep in places.

Front in adult a little more than one-third the greatest breadth of the carapace, very slightly declivous, its sides either nearly parallel or oblique, its edge nearly smooth (crenulate in the young) and straight. External orbital angle broad, subacute, not separated from lower border of orbit by any gap.

Antero-lateral borders of carapace convex, sharp, crenulate, more than two-fifths of their extent is in front of the prominent and acute epibranchial spine. Postero-lateral borders markedly convergent.

Epigastric crests prominent, rugulose, overlapping and a little in advance of the post-orbital crests. Post-orbital crests thin, sharp, crenulate, more or less broken at their outer ends, but distinctly passing to the epibranchial spine, or to the edge of the carapace just in front of it.

Abdomen of adult male not much broadened at base; 6th segment with convergent and concave sides, its length equals its distal breadth; 7th segment as long as broad, broadly rounded at tip.

The antennal peduncle loosely fills the orbital gap; the flagellum is short.

Mandibular palp as described in the diagnosis of the subgenus. The exopodites of all the maxillipeds have a strong flagellum. In the external

maxillipeds the exopodites are longer than the ischium, the ventral surface of the ischium is not longitudinally grooved, and the merus is broader than long.

Chelipeds unequal in both sexes—more so in the male; their surface is almost smooth to the naked eye, but the palm and fingers are pitted; when magnified their surface is reticulo-rugose. Upper edge of merus crenulate, but without any trace of a subterminal spine. A coarse spine at inner angle of carpus. In both chelipeds the fingers are stout and have broad concave tips, the proximal teeth are enlarged and molar-like, and the distal teeth are small, regular, translucent, and incisor like; in both, the fixed finger is very broad, the dactylus is curved, and the closed fingers gape to a certain extent (more in the larger cheliped). At the base of the fixed finger of the larger chelæ —and sometimes of the smaller chelæ also—one tooth may be enormously enlarged.

Legs stout, their joints broad; they are about as long as the chelipeds in the male, but not in the female; the dactyli are not—or very little—longer than the propodites; the longer propodites are about twice as long as broad.

In a large male the carapace is $1\frac{6}{16}$ inch long, $1\frac{3}{16}$ inch broad, and $\frac{12}{16}$ths inch deep; the larger hand is $1\frac{7}{16}$ inch long (the maximum length of the palm being $\frac{7}{8}$ths inch, the maximum length of the dactylus $\frac{15}{16}$ths inch), $\frac{11}{16}$ths inch high, and $\frac{6}{16}$ths inch thick.

$\frac{6918}{3}$.	Kalagán, Baluchistan.	W. T. Blanford.	2 ♂, 3 ♀.
$\frac{4014}{4}$.	Bampusht, Baluchistan.		1 ♀.
$\frac{4019}{4}$.	Mand, Baluchistan.		4 ♂, 2 ♀.
$\frac{4043}{4}$.	Pishin, Baluchistan.		4 ♂, 4 ♀ (types included).

4. Paratelphusa (Paratelphusa) sinensis, Edw. (Fig. 54.)

Paratelphusa sinensis, Milne Edwards, Ann. Sci. Nat. Zool. (3), XX., 1853, p. 213: Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 241 (*ubi lit.*), pl. xi., fig. 7.

Carapace convex, its length three-quarters to four-fifths its greatest breadth, its depth half its length; its surface pitted; a few fine oblique wrinkles near the postero-lateral borders.

Cervical groove just visible, but very superficial and indistinct, sometimes represented in places by a line of irregular pits.

Regions recognisable but not clearly defined. Post-frontal mesogastric groove indistinct; behind it the mesogastric area can be traced, though extremely faintly, in almost all its extent.

Front little deflexed, very broad, more than two-fifths the greatest breadth

of the carapace in the adult; its sides very oblique, forming an open curve with the upper border of the orbit; its edge sharp, very broadly and obscurely bilobed. Orbits and their antennal gap very wide; external orbital angle subacute, not separated from lower border of orbit by any gap.

Antero-lateral borders of carapace sharp, moderately curved, not quite as long as postero-lateral borders; armed with three strong teeth exclusive of the orbital angle.

Epigastric crests slightly overlapping and in advance of post-orbital crests; they consist of a sharp subcrescentic edge and an anterior vermicular-eroded surface. Post-orbital crests usually distinct and sharp at their inner end, blunt and rather indistinct behind the orbits, and forming a very oblique crescentic bulge behind the external orbital angle.

Abdomen of adult male broad-based and remarkably constricted, hour-glass fashion, in the middle; 5th segment small but broad, its length half its proximal breadth; 6th segment long, broadened in its *distal* half, its length being nearly twice its basal breadth; 7th segment tongue-shaped, longer than broad.

Mandibular palp of the typical *Paratelphusa* form. Mouth-parts as in *P. spinigera*, except that the merus of the external maxillipeds is longer and squarer.

Chelipeds unequal, very much more so in the male than in the female; the subterminal spine of the upper border of the merus is sometimes coarse and worn; surface of carpus and hand almost smooth to the naked eye, though under a lens the surface of the carpus is vermicular-rugose; a spine, as usual, at the inner angle of the carpus. Fingers much longer than the palm; in the smaller chelæ they are rather slender and fairly straight, and though the teeth are not uniform or regular none of them is greatly enlarged; in the larger chelæ of the adult male the fingers are stout, the dactylus is strongly curved so that the fingers meet only at tip, and some of the teeth at fairly regular intervals, in both fingers, are much enlarged; the curving of the dactylus varies with age in the male, and is never so much marked in the female.

Legs about as long as the smaller cheliped; in all of them there is a subterminal spine on the anterior border of the merus.

In a large male the carapace is $1\frac{1}{8}$ inch long, $1\frac{7}{16}$ inch broad, and $\frac{5}{8}$ths inch deep; and the length of the hand (fingers included) is $1\frac{3}{4}$ inch, the maximum length of the palm being $\frac{15}{16}$ths inch, of the dactylus $1\frac{3}{16}$ inch.

This species lives both in fresh and brackish water, and is found from Burma eastwards to China along the coast.

$\frac{4106}{4}$. Moulmein. Museum Collector. Many specimens.

5. Paratelphusa (Paratelphusa) grayi, Alcock. (Fig. 17.)

This species is very close to *P. sinensis*, from which it differs only in the following particulars :—

The cervical groove is distinct, even deepish in places, though not quite continuous; hence the regions are more distinct.

The front shows no trace of division into two lobes. The teeth of the antero-lateral borders are not so sharp.

The abdomen of the male is even more decidedly hour-glass shaped, owing to the fact that the 5th segment is a long joint—its length being about equal to its proximal breadth—and is contracted distally.

The merus of the external maxillipeds is longer, though its breadth slightly exceeds its length.

In the largest specimen—an adult female—the carapace is 1 inch long, $1\frac{1}{4}$ inch broad, and $\frac{1}{2}$ inch deep.

$\frac{7081\text{-}88}{9}$.	Moung Sal, Mekhok R.	Dr Gray.	8 ♂, 5 ♀.
$\frac{5500}{10}$.	Moung Sal, Mekhok R.	Dr Gray.	5 ♂, 10 ♀.

Subgenus II.—Barytelphusa, Alcock.

Type : *Barytelphusa jacquemontii* (Rathb.) = "*Telphusa indica*," Guerin.

No spine on the upper border of the merus of the chelipeds; the antero-lateral borders of the carapace may be crenulate or not, but never bear a series of large teeth or spines.

The epigastric crests are either united with the post-orbital crests to form one unbroken ridge on either side of the post-frontal mesogastric groove, or, if the epigastric crests are separated from the post-orbital crests, the break between them is vague and sometimes very indistinct, and both crests form one common curve.

The exopodite of the external maxillipeds carries a long, strong, plumose flagellum.

The cervical groove is usually very broadly and deeply impressed in all its course, and usually runs to, or towards, the lateral epibranchial spine.

The species are generally large, and dark brown in colour.

The species of this big subgenus may be divided into two series, which, however, are not sharply separated, as follows :—

I. Epigastric and post-orbital crests continuous, forming one prominent transverse ridge on either side of the post-frontal mesogastric groove	Group I.	*P. jacquemontii* group.
II. The epigastric crests are indistinctly separated from the post-orbital crests, but form a common curve with them .	Group II.	*P. lugubris* group.

Group I. In which the epigastric and post-orbital crests on either side are united.

I. The post-orbital crest runs up to, or in to, or at least to the level of, the lateral epibranchial tooth on either side :—
  i. Lateral epibranchial tooth prominent and sharp :—
    1. Post-orbital crest separated from the lateral epibranchial tooth by the cervical groove, not regularly crenulate, nearly straight . *P. jacquemontii.*
    2. Post-orbital crest not distinctly separated from the lateral epibranchial tooth, regularly crenulate, its outer end lobe-like . *P. lamellifrons.*
  ii. Lateral epibranchial tooth small and blunt, or obsolescent :—
    1. Carapace oval in outline ; only a small part of the antero-lateral border lies in front of the lateral epibranchial tooth :—
      a. Carapace flattish, cervical groove interrupted . . *P. cunicularis.*
      b. Carapace strongly convex, cervical groove deep in all its course :—
        α. Depth of carapace equals half length ; 6th abdominal segment in adult male as long as broad :—
          (i) Antero-lateral borders of carapace irregularly crenulate, not cristiform . . . . *P. edentula.*
          (ii) Antero-lateral borders of carapace regularly crenulate, cristiform . . . . *P. napæa.*
        β. Depth of carapace exceeds half length ; 6th abdominal segment in adult male much longer than broad . . . . . *P. pulvinata.*
    2. Carapace squarish in outline, flat ; about half of the antero-lateral border lies in front of the lateral epibranchial tooth . *P. pollicaris.*

II. The post-orbital crest ends on the dorsum of the carapace well inside, and well behind the level of, the lateral epibranchial tooth, which is small and blunt or obsolescent :—
  i. Carapace strongly convex . . . . . *P. guerini.*
  ii. Carapace slightly convex . . . . . *P. planata.*
  iii. Carapace nearly flat . . . . . *P. pocockiana.*

6. Paratelphusa (Barytelphusa) jacquemontii, Rathbun. (Fig. 55.)

Telphusa indica auctorum.

Potamon (*Potamonautes*) *jacquemontii*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 185 (*ubi synon.*), pl. xvi., figs. 1 and 5.

Carapace flat, though the three main regions have a certain individual convexity ; its length three-fourths its greatest breadth in adult males, but more than three-fourths in adult females, its depth a good deal less than half its length ; the lateral half of each epibranchial region is traversed by many fine oblique ridges, which become a good deal effaced in very large specimens.

Cervical groove very bold and deep in all its course, broadly V-shaped, running to the lateral epibranchial tooth on either side. Regions of carapace not areolated. Mesogastric furrow deep.

Front in large adults a fourth the greatest breadth of the carapace, somewhat more in smaller adults ; little deflexed, its sides convergent, its edge faintly bilobed and almost smooth ; its surface pitted and rough, except near the orbital margin.

Orbits wide, their inner gap also wide; external orbital tooth distinct, with at most only a trace of a gap between it and the lower orbital margin.

Antero-lateral margins of carapace well defined, sharpish, but hardly crest-like, rather irregularly crenate, arched; lateral epibranchial tooth well formed, sharp.

The epigastric and post-orbital crests form one bold much-undermined ridge sweeping on either side, with a slight anterior concavity, from the mesogastric furrow to the lateral epibranchial tooth, but separated from that tooth by the deep cervical groove; the epigastric portion of each crest is distinguished by a double or eroded edge.

In the abdomen of the adult male the length of the 6th segment is equal to its greatest breadth, the segment being squarish with the sides slightly concave; the length of the 7th segment exceeds its greatest breadth.

Mandibular palp as in the type of the genus *P. tridentata*, Edw., the 1st and 2nd joints being fused together, and the terminal joint being bilobed from the base, the broad anterior lobe overhanging the ventral surface of the mandible, and the falciform posterior lobe lying behind the incisor process of the mandible.

In the external maxillipeds the exopodite is much longer than the ischium and carries the usual strong, plumose flagellum; the ischium is longitudinally grooved, and the merus is broader than long and has an oblique anterior border.

The chelipeds are not very unequal in the female, but are considerably unequal in the adult male; in the merus the edges are crenulate and the outer surface is transversely rugose; in the carpus the upper and outer surfaces are rugulose, and the inner angle forms a strong coarse spine; the palm and fingers are pitted, the pits especially on the fingers having a linear arrangement, and there are some squamiform tubercles on the upper surface of the palm; the tips of the fingers are hooked, and the fixed finger is much broader than the dactylus. In the smaller cheliped the fingers are a good deal longer than the palm, do not gape much when closed, and have fairly even teeth, one tooth in the fixed finger being a little enlarged. In the larger cheliped the fingers are as long as or very slightly longer than the palm, both of them have near the base one tooth greatly enlarged, and the dactylus is considerably arched, so that the fingers gape a good deal when the tips are apposed, this being most marked in old males.

The legs are very strong but are shorter than the chelipeds; the longer propodites are about twice as long as broad, and are not much shorter than their dactyli in old males.

This species attains a large size; in the largest male the carapace is 3 inches long and 4 inches broad, and the hand (fingers included) of the

larger cheliped is 4 inches long, the palm being 2 inches long, just under 2 inches high, and more than an inch thick.

6414/3.	Coorg.	J. Wood-Mason.	1 ♂, 1 ♀.
6417./3	Parisnath Hill.	F. Stoliczka.	12 ♂, 11 ♀.
6901./3	Parisnath Hill.	Unknown donor.	9 ♂, 4 ♀, 8 young.
6902/3.	Barrabhum.	Museum Collector.	2 ♂.
6938/3.	Coonoor, Nilgiris.	F. Day.	1 ♂, 1 ♀.
6941/3.	Anamalai Hills.	F. Beddome.	1 ♂, 9 ♀.
6950/3.	Khandalla and Mahableshwar.	Unknown donor.	Numerous immature specimens.
6994/3.	Debnaddi, Narbudda basin.	H. H. Godwin-Austen.	14 immature specimens.
6995/3.	Khandalla.	F. Stoliczka.	1 ♂, 1 ♀.
3561-63/4, 3560/7.	Calicut.	G. Hadfield.	3 ♂, 1 ♀.
4034/4.	Hardwar.	F. Day.	1 ♂.
4040/4.	Khandalla.	Unknown donor.	1 ♀.
4059/4.	Morar.	S. Pratt.	2 ♀.
4102/4.	Chota Nagpur.	V. Ball.	1 ♂, 1 ♀.
4109/4.	Nassik.	Captain Houghton.	2 ♂, 1 ♀.
4113/4.	Upper Godávari.	Dr Gaffney.	1 ♂.
4114/4.	Morar.	S. Pratt.	3 ♂, 1 ♀.
3166/5.	Poona.	Karáchi Museum.	1 ♀.
3549-52/7, 3590/7.	Shervaroy Hills.	W. Daly.	1 ♂, 1 ♀, 3 young.
3564-66/7.	Calicut.	G. Hadfield.	3 ♀.
3326/9.	Hoshangabad.	G. M. J. Giles.	1 ♂.
5451-52/10.	Manbhum.	K. Hallowes.	1 ♂, 1 ♀, 12 immature.
5514/10.	Poona.	Unknown donor.	2 ♀.
5535/10.	Ootacamund.	F. Beddome.	1 ♂.
5803-4/10.	Parisnath Hill.	N. Annandale.	3 ♂, 2 ♀.

In the following two specimens the anterior half of the gastric region is covered with small squamiform tubercles :—

$\frac{5733}{10}$.	Madathoray, Travancore.	N. Annandale.	2 ♀.

It is a pity that the good old name *indica*, by which this species is so well known, has had to be changed; but it is extremely unfortunate that the name now chosen should be *jacquemontii*, because it is very doubtful whether the so-called genus *Paratelphusa* is anything but a section of *Gecarcinucus*, and there is already a well-known *Gecarcinucus jacquemontii*. If *Paratelphusa* be hereafter united with *Gecarcinucus*, we shall want still another name for *Paratelphusa jacquemontii*, alias *Telphusa indica*.

7. Paratelphusa (Barytelphusa) lamellifrons, Alcock. (Fig. 18.)

This species differs from *P. jacquemontii* only in the following particulars, females being compared (in the absence of a male) :—

Owing to the prominence of the front, the carapace is longer, its length being nearer four-fifths than three-fourths of its greatest breadth.

The cervical groove, though very bold and deep, is much broader in the lateral parts of its course, and in the neighbourhood of the lateral epibranchial tooth is so broad and superficial as to be vague.

The front in the adult female is much less than one-fourth the greatest breadth of the carapace, is less deflexed, and has a thin, straight, crenulate, lamellar edge, which projects much beyond the epistome.

The external orbital tooth is very prominent and sharp, and is separated from the lower border of the orbit by a very distinct gap.

The distance between the tip of the orbital tooth and the base of the epibranchial spine forms almost half of the antero-lateral border of the carapace.

The lateral epibranchial spine is very prominent and acute, and the antero-lateral margin in rear of it is hardly curved.

The epigastric and post-orbital crests on either side of the mesogastric furrow form a single prominent undermined crest, as in *jacquemontii;* but (1) the epigastric portion is not distinguished by anything but a slight fullness beneath the free edge of the crest; (2) the edge of the crest is very elegantly crenulate in all its extent; and (3) at its outer end the crest bulges forward to form an undetached lobe, the convexity of which is on a level with the tip of the epibranchial spine, and the base of which joins the antero-lateral margin of the carapace just in front of the base of the epibranchial spine.

The spine at the inner angle of the carpus of the chelipeds is longer and more acute.

In an adult female the carapace is $1\frac{14}{16}$ inch long and $2\frac{5}{16}$ inches broad.

$\frac{7724}{9}$.	Madathoray, Travancore.	Travancore Museum.	1 ♀ (type).
$\frac{5730}{10}$.	Kulattupuza, Travancore.	N. Annandale.	1 young ♀.

8. Paratelphusa (Barytelphusa) cunicularis, Westwood. (Fig. 56.)

Telphusa cunicularis, Westwood, Trans. Entomol. Soc., I., 1836, p. 183, pl. xix.
Potamon (*Potamonautes*) *cunicularis*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 184 (*ubi synon.*), pl. xv., fig. 10.

Differs from *P. jacquemontii* in the following particulars :—

The carapace is broader, its length being, in both sexes, well under three-fourths its greatest breadth ; it is also, as a whole, more convex ; and the lateral parts of the epibranchial regions are less rugose, especially behind.

The cervical groove is not so broad and deep, and is in places indistinct or interrupted ; *it does not distinctly divide the post-orbital crests from the lateral epibranchial tooth*, as is well shown in Westwood's figure.

The front is more deflexed, and is perhaps even less distinctly bilobed.

The antero-lateral borders of the carapace are more convex, and the lateral epibranchial tooth is very much smaller, being often almost obsolete.

Owing to the more superficial nature of the cervical groove, the post-orbital crests are not distinctly separated from the lateral epibranchial tooth (or its site), and sometimes appear quite continuous with that tooth.

The merus of the external maxillipeds is more quadrangular in shape, its anterior border being less oblique ; and the longitudinal groove of the external surface of the ischium is usually quite indistinct.

In the chelipeds the fixed finger is even broader, and none of the teeth —except sometimes one at the base of the fixed finger of the larger cheliped— is enlarged.

The species seems not to attain anything like the size of *jacquemontii*.

$\frac{6939}{3}$.	Coonoor, Nilgiris.	F. Day.	3 ♀.
$\frac{1005}{1}$, $\frac{4027}{4}$.	Shervaroy Hills.	F. Beddome.	2 ♂, 1 ♀.
$\frac{3606\text{-}9}{7}$, $\frac{3553\text{-}5}{7}$.	Shervaroy Hills.	W. Daly.	3 ♂, 4 ♀.
$\frac{4887\text{-}90}{9}$.	S. Arcot.	Museum Collector.	2 ♂, 2 ♀ (all young).

9. Paratelphusa (Barytelphusa), sp. prox. cunicularis.

In the collection are ten little specimens from South India, which, but for their size, I should refer to *P. cunicularis*. The largest of them is an egg-

laden female with a carapace only $\frac{3}{4}$ inch long and 1 inch broad. They may possibly be a dwarf variety of *P. cunicularis*.

$\frac{4003}{4}$.	S. India.	F. Beddome.	3 ♀.
$\frac{4364}{4}$.	S. India.	F. Beddome.	1 ♂.
$\frac{1753\text{-}55}{10}$, $\frac{1761\text{-}63}{10}$.	S. India.	Travancore Museum.	2 ♂, 4 ♀.

10. Paratelphusa (Barytelphusa) edentula, Alcock. (Fig. 19.)

This species connects *P. cunicularis*, *P. guerini*, and *P. lugubris*. As in *cunicularis*, the post-orbital crest runs right into what there is of a lateral epibranchial tooth; and, as in *guerini*, the carapace is convex, and the cervical groove is broad and deep in all its course. It differs from both in the form of the 6th abdominal segment of the male, which is a little longer than broad (longer than in *jacquemontii*) and almost hour-glass shaped. A vague break, or suggestion of a break, between the epigastric and post-orbital crests brings the species near *P. lugubris*, of which I was at one time inclined to regard it as a variety.

Carapace, as in *P. guerini*, convex, broad, with well-arched lateral borders; its length in both sexes is three-fourths its greatest breadth, its depth is half its length.

Cervical groove broad, deep, running to the lateral epibranchial tooth, but not dividing it from the post-orbital crest. All the regions are distinct, as is the mesogastric furrow, but there is no other areolation. There are a few short, oblique, indistinct wrinkles or tubercles inside the lateral borders, but otherwise the carapace is smooth to the naked eye; the said wrinkles are most distinct posteriorly, and may be absent anteriorly.

Front in the adult one-fourth the greatest breadth of the carapace, much deflexed, its sides convergent, its edge smooth and broadly bilobed.

Outer orbital angle broad, depressed, not dentiform, not separated from the lower border of the orbit by a gap.

Antero-lateral borders of carapace well arched, distinct, but hardly crest-like, bluntly and feebly crenulate; lateral epibranchial tooth quite feeble or obsolete, being formed by the junction with the post-orbital crest.

The epigastric and post-orbital crests form, on either side of the mesogastric furrow, one unbroken crest, which runs into what there is of a lateral epibranchial tooth; the epigastric portions of the crest are broad and blunt, and only the outer half of the post-orbital portions is at all sharp; the inner portion of the post-orbital crests is sometimes so blunt as to suggest a break between them and the epigastric crests.

The mouth-parts conform entirely to the description given for *P. jacquemontii*.

In the male abdomen the 6th segment approximates to the hour-glass shape, the sides being much concave, the distal breadth not much exceeding the proximal breadth, and the length decidedly exceeding the greatest breadth; the 7th segment also is longer than broad.

Chelipeds subequal in the female, unequal—but not immoderately so—in the adult male; the merus is rugulose, but the carpus and hand are smooth to the naked eye; the tooth at the inner angle of the carpus is small; the fingers have hooked tips; only one tooth, in the fixed finger of the larger chelæ, is a little enlarged; the dactylus is a little longer than the palm, and the fixed finger is not excessively broad.

Legs strong, shorter than the smaller cheliped; the longer propodites are twice as long as broad, and are a little shorter than their dactyli.

In the largest specimen, a female, the carapace is $1\frac{3}{4}$ inch long, $2\frac{3}{8}$ inches broad, and $\frac{13}{16}$ths inch deep.

$\frac{7000}{3}$.	Naga Hills.	N. Belletty.	1 ♂, 1 ♀.
$\frac{5513}{10}$, $\frac{5555}{10}$.	Sibsagar, Assam.	S. E. Peal.	1 ♂, 1 ♀ (types).
$\frac{6577\text{-}81}{9}$.	Darband Pass, Cachar.	J. Wood-Mason.	3 ♂, 1 ♀.

At first sight this species might suggest *P. guerini;* but in *P. guerini* the post-orbital crest ends on the dorsum of the carapace well behind and well separated from the lateral epibranchial tooth, and the fingers of the chelæ are much clumsier.

11. Potamon (Barytelphusa), sp. prox. guerini et edentula.

$\frac{5505}{10}$.	N.E. Cachar.	J. Inglis.	2 ♂, 1 ♀ (all young).

These three young individuals—the carapace of the largest just exceeds $\frac{1}{2}$ inch in length—agree well enough with *P. edentula*, but, being young, the front is broader (more than a fourth but less than a third the greatest breadth of the carapace), and the length of the 6th segment of the male abdomen only equals its distal breadth, and is less than its proximal breadth.

12. Paratelphusa (Barytelphusa) napæa, Alcock. (Fig. 20.)

This species is very very close to *P. edentula*, being, like it, annectant between *P. cunicularis* on the one hand and *P. lugubris* on the other.

It differs from *P. edentula* only in the following particulars:—

The surface of the carapace is pitted, and the antero-lateral borders are cristiform and finely and regularly crenulate.

The epigastric crests are rugose and are more oblique, and hence the suggestion of a break between them and the post-orbital crests is more

manifest. The post-orbital crests are strongly sinuous, and have their edge much broken up into little tubercles.

In the male abdomen the 6th segment is elongate, but its sides are less concave.

The chelipeds in the male are much more unequal.

The largest specimen (male) has a carapace $1\frac{1}{16}$ inch long, $1\frac{1}{2}$ inch broad, and $\frac{1}{2}$ inch deep.

Ex $\frac{5524}{10}$.	Ganjam in N. Cachar.	Purchased.	5 ♂, 6 ♀ (including types).

13. Paratelphusa (Barytelphusa) pulvinata, Alcock. (Fig. 21.)

This species, though coming from a far distant locality, is most closely related to *P. edentula*. It is at once distinguished from everything in this subgenus by the long, narrow, 6th abdominal segment of the adult male, and by the remarkable convexity of the carapace, which is subcylindrical, as in *Gecarcinucus*.

It differs from *P. edentula* in the following particulars:—

The carapace is broader and *very much more convex;* its length in the adult female is three-fourths its greatest breadth, but in the adult male is considerably less than this; its depth much exceeds half its length. The loop made by the cervical groove is longer and narrower.

The front is more than a fourth the greatest breadth of the carapace even in the adult male; its edge is feebly sinuous, *with an indistinct median convexity.*

The well-arched antero-lateral borders are subcristiform.

The whole of the post-orbital portion of the crest of the carapace is sharp; the end of the crest does not always run quite into the small lateral epibranchial tooth.

In the external maxillipeds the merus is very slightly broader than long.

In the male abdomen the two terminal segments are particularly long and narrow; in the 6th segment the sides are faintly concave, and the proximal and distal breadth are equal, *the breadth being only two-thirds of the length.*

In the adult male the disparity between the chelipeds is greater, the outer surface of the merus is less rugulose, and one tooth in the dactylus as well as one in the fixed finger is enlarged.

In the legs the longest propodites are not twice as long as broad.

In an adult male the carapace is $1\frac{3}{16}$ inch long, $1\frac{1}{16}$ inch broad, and $\frac{13}{16}$ths inch deep.

$\frac{6419}{3}$.	Coorg.	G. L. Hadfield.	4 ♂, 1 ♀ (types).
$\frac{5495}{10}$.	Ootacamund.	F. Beddome.	2 ♂, 1 ♀ (immature).

This species has a remarkably strong resemblance to *Gecarcinucus*.

14. Paratelphusa (Barytelphusa) guerini, Milne Edwards. (Fig. 57.)

Telphusa guerini, Milne Edwards, Ann. Sci. Nat. Zool. (3), XX., 1853, p. 210.
Potamon (Potamonautes) guerini, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 186 (*ubi lit.*), pl. xvi., fig. 2.

Carapace broad, deepish, and strongly convex; its length in the adult male is about two-thirds its greatest breadth, but is more than two-thirds in the adult female; its depth is half its length, or more; its surface is, to the naked eye, smooth, except for a few short faintish rugæ just inside the lateral borders.

Cervical groove broad and deep, running towards but not reaching the site of the lateral epibranchial tooth.

Except for the longitudinal mesogastric furrow the regions of the carapace are not areolated.

Front, in adults, more than a fourth the greatest breadth of the carapace, much deflexed, rather square-cut, although its sides are convergent and its smooth edge is feebly bilobed; its surface, though smooth, is tumid.

Orbits wide, with a smooth edge; the outer orbital angle is very broad, low, and blunt, and there is no distinct gap ventral of it.

Antero-lateral borders of carapace strongly convex, well defined, bluntly and rather irregularly crenulate; the lateral epibranchial tooth and notch are only just discernible at the best of times.

The epigastric and post-orbital crests form one bold ridge on either side of the mesogastric furrow, the epigastric portion being distinguished by its bluntness and greater thickness; the crest ends on the dorsum of the carapace *well behind the site of the lateral epibranchial tooth*, and it is not anywhere cut by the cervical groove.

In the male abdomen the 6th segment is long (its length almost equal to its greatest breadth), but the sides are distinctly convergent; the blunt 7th segment is longer than broad.

The mouth-parts are as described in *jacquemontii*, the only noteworthy difference is that the merus of the external maxillipeds is, as in *cunicularis*, more quadrangular in outline.

Chelipeds much more unequal in the male than they are in the female; much as described in *jacquemontii*, with the modifications noticed in *cunicularis* —that is to say, the fingers, particularly the fixed finger, are broader, and none of the teeth is remarkably enlarged.

Legs as described in *jacquemontii*.

In an adult male the carapace is $1\frac{6}{16}$ inch long, 2 inches broad, and $\frac{11}{16}$ths inch deep.

$\frac{6999}{3}$, $\frac{6947}{3}$, $\frac{3126}{5}$.	Khandalla.	F. Stoliczka.	12 ♂, 7 ♀.
$\frac{4001}{4}$.	Bilaspur, Central Provinces.	W. T. Blanford.	1 ♀.
$\frac{4013}{4}$.	Poona.	Unknown donor.	2 ♂, 1 ♀ (young).
$\frac{4020}{4}$.	Bombay.	W. T. Blanford.	1 ♂.
$\frac{4062}{4}$.	Lanauli.	F. Stoliczka.	3 ♂, 3 ♀.
$\frac{5502}{10}$.	Near Kuerli Caves.	F. Stoliczka.	3 ♂, 4 ♀.

15. Paratelphusa (Barytelphusa) guerini, var. planata, A. M. Edw.

Telphusa planata, A. Milne Edwards, Nouv. Archiv. du Muséum, V., 1869, p. 181, pl. xi., fig. 3.
Potamon (Potamonautes) planatus, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 187 (*ubi lit.*), pl. xvi., fig. 4.

In this variety the carapace is less convex, the front is squarer cut owing to its sides being nearer the parallel, and the groove of the ventral surface of the ischium of the external maxillipeds is fainter.

In an adult male the carapace is $1\frac{1}{2}$ inch long, $2\frac{1}{8}$ inches broad, and $\frac{3}{4}$ths inch deep.

$\frac{4056}{4}$.	Nassik.	Colonel Houghton.	3 ♂, 4 ♀.
$\frac{5481}{10}$.	Mahableshwar.	J. Wood-Mason.	2 ♂, 1 ♀.
$\frac{5499}{10}$.	Kurraballi.	J. Wood-Mason.	1 ♀.
$\frac{5560}{10}$.	Mahableshwar and Khandalla.	Unknown donor.	2 ♂, 4 ♀.

16. Paratelphusa (Barytelphusa) guerini, var. pocockiana, Henderson.

Telphusa pocockiana, Henderson, Trans. Linn. Soc., Zool. (2), V., 1893, p. 384, pl. xxxvii., figs. 5-8.

In this variety the carapace is flatter, the front is squarer cut (its sides being parallel), and the groove of the ventral surface of the ischium of the external maxillipeds is even less distinct than in the variety *planata*.

A more noteworthy difference is in the shape of the 6th segment of the abdomen of the adult male, the sides of which are straight and quite strongly convergent, so that the length of this segment is only just equal to its distal breadth.

In an adult male the carapace is $1\frac{6}{16}$ inch long, $1\frac{5}{16}$ inch broad, and $\frac{4}{16}$ths inch deep.

$\frac{6990}{3}$.	Jubbulpore.	F. Stoliczka.	4 ♂, 7 ♀.
$\frac{3532\text{-}7}{7}$, $\frac{3541\text{-}5}{7}$.	Chunar.	J. Wood-Mason.	4 ♂, 6 ♀.
$\frac{6956}{5}$.	Sirguja, Chota Nagpur.	V. Ball.	3 ♂, 1 ♀.

17. Paratelphusa (Barytelphusa) pollicaris, Alcock. (Fig. 22.)

Colour in spirit rich chocolate, with blackish points to the chelæ.

Carapace flat, its length in the adult male about three-fourths its greatest breadth and more than that in the adult female, its depth a good deal less than half its length; the lateral half of each epibranchial region is obliquely rugulose; the front and sometimes the anterior limit of the gastric region are also rugulose.

Cervical groove deep and broad; it runs wide and distinct right up to *a point behind the lateral epibranchial tooth* on either side. All the regions are distinct, as is the median mesogastric groove, but there is no other areolation.

Front in adults rather more than one-fourth the greatest breadth of the carapace, moderately declivous, square-cut, though its sides converge; its edge feebly crenulate, feebly sinuous.

External orbital tooth broad, low, blunt, meeting the lower border of the orbit without any notch.

Antero-lateral margins of carapace well defined but hardly cristiform; irregularly crenulate; *about half their extent lies in front of the lateral epibranchial tooth, which, though distinct, is blunt and hardly prominent.*

The epigastric and post-orbital crests form one strong, almost straight, feebly-crenulate ridge, running, on either side, from the mesogastric furrow *obliquely into the lateral epibranchial tooth*, the tooth in fact being formed by the junction of the edge of the carapace with the crest; the epigastric portion of each crest is distinguished by its thickness and rugosity.

In the abdomen of the adult male the 6th segment has convergent sides, but its length exceeds its distal breadth; the length of the 7th segment exceeds its greatest breadth.

The mouth-parts conform to the description given for *P. jacquemontii*, the only notable difference being that the groove of the ventral surface of the ischium of the external maxillipeds is faint and sometimes absent.

Chelipeds unequal in both sexes, more so in the male; the fingers broad, particularly the fixed finger, and having fairly even teeth. The exposed surfaces of the merus and carpus and the upper surface of the palm are

transversely squamo-rugulose, but the wrinkles are so fine that they are sometimes hard to be made out by the unaided eye; at the inner angle of the carpus is a coarse blunt tooth instead of the usual spine; the dactylus of both chelæ is about as long as the palm, and in the larger chelæ is (particularly in the adult male) arched so as to meet the fixed finger only at tip.

Legs strong, shorter than the smaller cheliped; the spines of the dactyli are remarkably strong, and the anterior border of the carpi and both borders of the propodite are very strongly serrate.

In an adult male the carapace is $1\frac{1}{2}$ inch long, 2 inches broad, and $\frac{11}{16}$ths inch deep.

The nearest relative of this Travancore species is undoubtedly *P. lugubris*, from the Himalayas.

In *P. lugubris* and all its varieties the epigastric crests form an obtuse angle with the post-orbital crests and are separated from them by a vague break, and the fixed finger of the chelæ is not so broad at base; there are no other constant differences between the two species.

$\frac{1779\text{-}87}{10}$.	S. India.	Travancore Museum.	{ 3 ♂, 3 ♀, 6 non-adults (types included).

From *P. jacquemontii* the above species is easily distinguished by the cervical groove, which meets the antero-lateral border of the carapace at a point well behind the lateral epibranchial tooth, on either side.

Group II. The epigastric and post-orbital crests are incompletely or indistinctly (sometimes *very* indistinctly) separated from one another.

I. Carapace distinctly oval in outline, the antero-lateral borders sharply defined and subcristiform or cristiform; lateral epibranchial tooth obsolete:—
  i. Antero-lateral borders of carapace irregularly crenulate, not cristiform. *P. edentula.*
  ii. Antero-lateral borders of carapace regularly crenulate, cristiform . *P. napæa.*

II. Carapace not distinctly oval in outline, the antero-lateral borders not sharply pinched-off from the general surface:—
  i. External orbital tooth broad and blunt; lateral epibranchial tooth small and blunt, or obsolescent; general plane of carapace flat:—
    1. Carapace not emphatically flat, its depth nearly equals half its length . . . . . *P. lugubris.*
    2. Carapace flat *sans phrase*, its depth much less than half its length:—
      a. Propodites of legs remarkably serrate; fingers of chelæ remarkably broad . . . . . *P. falcidigitis.*
      b. Propodites of legs reasonably serrate; fingers of chelæ reasonably broad . . . . . *P. plauta.*
  ii. External orbital tooth subacute; lateral epibranchial tooth sharp, of fair size; general plane of carapace somewhat convex . . *P. harpax.*
  iii. External orbital tooth subacute; lateral epibranchial tooth large, prominent, sharp; general plane of carapace tumid . . . *P. masoniana.*

18. Paratelphusa (Barytelphusa) lugubris, Wood-Mason. (Fig. 58.)

Telphusa lugubris, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., 1871, pt. II., p. 197, pl. xii., figs. 5-7.
Potamon (*Potamon*) *lugubris*, Mary J. Rathbun, Nouv. Archiv. du Muséum, (4), VI., 1904, p. 308 (*ubi lit.*).

Colour in spirit dark brown or bronze, sometimes becoming nearly black; superficial cuticle sometimes furfuraceous, sometimes thick, adherent, and smooth and shiny.

Carapace flat or flattish, though the individual regions have a slight convexity; its length sometimes slightly over, sometimes slightly under, three-fourths its greatest breadth, its depth a little less than half its length; its surface to the naked eye finely and abundantly pitted, with some fine oblique wrinkles just inside the lateral borders; its regions well defined, but, except for the anterior mesogastric groove and two faint præcardiac facets, not areolated.

Cervical groove very broad and deep, running sometimes to, sometimes to a point slightly behind, the lateral epigastric tooth on either side.

Front in the adult one-fourth, or slightly more or less, the greatest breadth of the carapace, declivous, pitted, or rugulose, with a thick, very obscurely crenulate edge, feebly bilobed.

Orbits wide; outer orbital angle broad, low, blunt, sometimes dentiform, sometimes not; not separated from the lower border of the orbit by any gap. Eyes comparatively small.

Antero-lateral borders of carapace fairly convex, well defined, but not cristiform, very obscurely crenulate; from about two-fifths to about half of their extent is in front of the lateral epibranchial tooth, which is always small and is occasionally almost indistinguishable.

Epigastric crests broad, blunt, rugulose, oblique; their outer ends are sometimes continuous with the post-orbital crests (though meeting them at an angle) and are sometimes incompletely separated from them by a very vague break. The post-orbital crests are sharpish in their outer half; sometimes they run into the lateral epibranchial denticle without any break, sometimes they are broken into tubercles at their outer end, but can still be traced into the lateral epibranchial denticle.

The outline of the male abdomen is, as in most *Paratelphusæ*, a broad-based, distally-contracted triangle with broadly-rounded apex; the 6th segment has convergent, slightly concave sides, and its length is equal to its distal breadth; the length of the 7th segment is equal to its proximal breadth.

The mouth-parts agree in all respects with those of *P. jacquemontii* (= "Telphusa indica"); the only noteworthy difference is that in the external maxillipeds the ischial groove is sometimes deeper, and the merus is broader and shorter, with its anterior border more oblique.

Chelipeds unequal in both sexes, most so in old males. The lower edges of the merus are smoothly beaded or bluntly crenulate, the upper border and outer surface are finely rugulose. The upper and outer surfaces of the carpus are pitted and obscurely reticulated with half-effaced, squamiform, or rugulose markings. The tooth at the inner angle of the carpus is coarse but often small. The surface of the palm and fingers is abundantly pitted, the palm being, otherwise, sometimes almost smooth, but generally roughened with obscure reticular markings. The fingers are very strong, and are broad, compressed, fairly evenly toothed, and longer than the palm.

The chelipeds, indeed, are very variable, especially the larger chelæ; in the young the larger chelæ are not immoderately enlarged, and the fingers are stout and little arched, and do not gape when closed; in the adult female and in ordinary males the dactylus of the larger chelæ is quite moderately arched, and the fingers gape a little at base when closed; in some old males the hand of the larger cheliped becomes enormously magnified, and the dactylus is so strongly arched that it meets the fixed finger only at tip.

Legs stout, shorter than the chelipeds; the longer propodites are about twice as long as broad, and are a good deal shorter than their dactyli.

This species grows to a considerable size, a carapace of 2 inches diameter being not uncommon.

Paratelphusa lugubris seems to be a more than ordinary variable species, and in justification for the course I have taken (after much laborious preliminary work) in describing so many forms as varieties of it, I will here specify the more noteworthy variations that can be detected in *adult individuals of the same sex collected at the same time and in the same place*:—

(1) Males.—Length of carapace varies from 70 per cent. of breadth to 75 per cent. of breadth.

Cervical groove in the same individual may run up to the epibranchial tooth on one side, and to the edge of the carapace *well behind* the epibranchial tooth on the other side.

Width of front varies from 25 per cent. of breadth of carapace to 28·5 per cent. of breadth of carapace (*adults*).

Epigastric crest may be continuous with post-orbital crest on one side, and discontinuous on the other side, in the same individual.

(2) Females.—Length of carapace varies from 72·5 per cent. of breadth to 75 per cent. of breadth.

Cervical groove may run on to the epibranchial tooth or to a point behind it.

Width of front varies from 24·2 per cent. of breadth of carapace to 25·8 per cent. of breadth of carapace (*adults*).

Epigastric crests may be clearly continuous with the post-orbital crests or not.

The variability of the chelæ has been already mentioned, as has that of the lateral epibranchial tooth.

$\frac{6436}{3}$.	Teesta Valley, Darjiling.	J. Wood-Mason.	1 ♀ (type).
$\frac{6437}{3}$.	Punkabári, Darjiling.	F. Stoliczka.	1 ♂ (type), 1 young ♂.
$\frac{6923}{3}$.	Manipur Hills.	H. H. Godwin-Austen.	2 ♂, 4 young.
$\frac{6943}{3}$.	Dafla Hills.	H. H. Godwin-Austen.	2 young ♂.
$\frac{6951}{3}$.	Thankot Hills, Nepál.	Museum Collector.	4 ♂, 7 ♀.
$\frac{4111}{4}$.	Sikkim.	J. Gammie.	23 ♂, 12 ♀.
$\frac{4030}{4}$.	Sikkim.	W. S. Atkinson.	2 ♂, 3 ♀.
$\frac{4048}{4}$.	Garo Hills.	H. H. Godwin-Austen.	3 young ♂.
$\frac{4099}{4}$.	Teesta Valley.	W. T. Blanford.	2 ♂, 3 ♀.
$\frac{3128}{5}$.	No loc. recorded.	Donor unknown.	3 ♂, 2 ♀.
No number.	Dafla Hills.	Botanical Collector.	1 ♂, 1 ♀.
No number.	Cherrapunji.	Museum Collector.	2 ♂.

19. Paratelphusa (Barytelphusa) lugubris, var. nigerrima, Alcock.

In this variety the carapace is not quite so broad as it is in many males of the typical form, and the lateral epibranchial tooth, though by no means spine-like, is more prominent. The cervical groove is deeper cut, and so the individual regions of the carapace look more convex. The antero-lateral borders of the carapace are slightly less convex. Its colour is darker, being greenish black or almost coal black (in spirit).

In the largest female the carapace is $1\frac{3}{4}$ inch long, $2\frac{5}{16}$ inches broad, and $\frac{3}{4}$ths inch deep.

$\frac{5517}{10}$. $\frac{5546}{10}$.	Changsil, N. Lushai.	Mr Aitken.	4 ♂, 2 ♀. 2 young ♀.

20. Paratelphusa (Barytelphusa) lugubris, var. plauta, Alcock.
(Fig. 23.)

This variety agrees with the type in every particular except the following :—

The carapace is particularly flat (even the individual regions, the gastric excepted, are flat) and is not quite so broad as in the type, and its antero-lateral borders are slightly less convex.

The wings of the cervical groove are broader and more superficial.

In a large male the carapace is $1\frac{3}{4}$ inch long, $2\frac{1}{4}$ inches broad, and $\frac{3}{4}$ths inch deep.

$\frac{4036}{4}$.	Assam.	S. E. Peal.	4 ♂, 5 ♀.
$\frac{5464}{10}$.	Sibsagar, Assam.	S. E. Peal.	9 ♂, 13 ♀.
$\frac{5551}{10}$.	Sibsagar, Assam.	S. E. Peal.	4 ♂, 3 ♀.
$\frac{4042}{4}$.	Khási Hills.	H. H. Godwin-Austen.	1 ♀.
$\frac{4053}{4}$.	Naga Hills.	— Butler.	7 ♂, 9 ♀.

21. Paratelphusa (Barytelphusa) falcidigitis, Alcock. (Fig. 24.)

This "species" I believe to be a variety of *lugubris*.

It resembles the variety *plauta* in having the carapace very decidedly flat (with even the individual regions hardly tumid), and not quite so broad as in the type of *lugubris*, and the wings of the cervical groove broader and a trifle more superficial.

Beyond this it differs from the type of *lugubris* only in the following particulars :—

The lateral epibranchial tooth is smaller and smoother; it is sometimes obsolete.

The post-orbital crests are sharper.

In the male abdomen the 6th segment is, as in old individuals of *harpax*, longer, its length being nearly equal to its proximal breadth and exceeding its distal breadth.

The chelipeds have their surface sculpture even more effaced-looking, so that, though they are not smooth, they have a sort of "smoothed" look; they are not so unequal, the smaller cheliped being larger in proportion than in *lugubris*. They have the fingers very remarkably broadened, so that, although the dactylus is very strongly curved along the upper border, the fingers, when closed, are in contact, or almost so, along their whole cutting edge. Sometimes there is a row of two or three spines, or large bead-like granules, on the base of the upper surface of the dactylus.

The legs are remarkable for the peculiarly strong spines of the edges of the dactyli, and for the very sharply and prominently serrated edges of the propodites.

In the largest specimen, a female, the carapace is $2\frac{1}{8}$ inches long, $2\frac{15}{16}$ inches broad, and 1 inch deep.

$\frac{4042}{3}$, $\frac{4029}{4}$.	Khási Hills.	H. H. Godwin-Austen.	3 ♀.
$\frac{6974}{3}$.	Cherra Punji.	H. H. Godwin-Austen.	1 ♂.

$\frac{6998}{3}$.	Garo Hills.	H. Williamson.	6 ♀ (young).
$\frac{4050}{4}$.	Naga Hills.	N. Belletty.	1 ♂, 1 ♀ (types).
$\frac{5518}{10}$.	Ganjam in North Cachar.	E. C. S. Baker.	1 ♂, 5 ♀.
$\frac{5525}{10}$, $\frac{5541}{10}$, $\frac{5552}{10}$, $\frac{5562}{10}$, $\frac{5524}{10}$ (part).	Ganjam in North Cachar.	Purchased.	7 ♂, 11 ♀.

22. Paratelphusa (Barytelphusa) harpax, Alcock. (Fig. 25.)

This form, which I believe to be only a variety of *lugubris*, differs from *lugubris* only in the following particulars :—

The colour in spirit specimens is lighter.

The carapace is a little more convex (not so much so as in *P. masoniana*); it is not so broad, its length always being slightly more than three-fourths its greatest breadth; the cervical groove is deeper, and so the regions appear individually more convex.

The external orbital angle is more prominent—in fact, is a distinct tooth.

The antero-lateral borders of the carapace are less convex, and the lateral epibranchial tooth is of good size, prominent, and acute.

The 6th segment of the abdomen in the largest old males is longer (its length being almost equal to its proximal breadth and slightly exceeding its distal breadth), and its sides are more concave.

The chelipeds are similar, and vary in the same way according to sex and age; the only noteworthy difference is that the spine at the inner angle of the carpus is sometimes finer and sharper, and that the fingers are a little longer.

In a large female the carapace is 2 inches long, $2\frac{1}{16}$ inches broad, and 1 inch deep; in the largest male the carapace is 2 inches long, $2\frac{3}{16}$ inches broad, and 1 inch deep; and the enlarged hand (fingers included) is 3 inches long, the dactylus being nearly $2\frac{1}{4}$ inches in length.

The difference between this form and *P. masoniana* is to be made out in the less convex carapace, the less prominent external orbital and lateral epibranchial teeth, and the more oblique set of the epigastric crests.

$\frac{6912}{3}$.	Assam (?)	S. E. Peal.	1 ♂.
$\frac{6919}{3}$.	Cachar.	E. B. Baker.	1 ♀.
$\frac{6928}{3}$.	Hill stream near Harmutti.	H. H. Godwin-Austen.	1 young ♂.
$\frac{6932}{3}$.	Assam.	Captain Butler.	1 young ♂.
$\frac{6981}{3}$.			1 young ♂.

$\frac{6986}{3}$.	Khási Hills.	H. H. Godwin-Austen.	1 ♀.
$\frac{4057}{4}$.	Naga Hills.	S. E. Peal.	2 ♀, 3 young ♂.
$\frac{4058}{4}$.	Base of Garo Hills.	N. Belletty.	1 ♀, 2 young ♂.
$\frac{4110}{4}$.	Garo Hills.	N. Belletty.	16 ♂, 12 ♀ (including types).
$\frac{6565\text{-}73}{9}$.	Barak River, Silchar.	J. Wood-Mason.	1 ♂, 6 ♀, 3 young.
$\frac{6574\text{-}76}{9}$.	Central Sylhet.	J. Wood-Mason.	3 young.
$\frac{5559}{10}$.	Garo Hills.	H. Williamson.	1 ♂.

23. Paratelphusa (Barytelphusa) masoniana, Henderson. (Fig. 59.)

Telphusa masoniana, Henderson, Trans. Linn. Soc. Zool. (2), V., 1893, p. 381, pl. xxxvii., figs. 1-4.
Potamon (*Potamon*) *masonianus*, M. J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, p. 299 (*ubi lit.*), pl. xi., fig. 10.

I believe this "species" to be a variety of *P. lugubris*, *P. harpax* being the connecting form between the two.

It agrees with *P. lugubris* in all particulars but the following :—

The carapace as a whole, and quite apart from the individual convexity of the several regions, is distinctly tumid; its relative length is a little greater.

The cervical groove runs rather to the inside than to the outside of the lateral epibranchial tooth on either side.

The front is slightly less declivous. The epigastric crests are less oblique.

The outer orbital tooth is prominent and acute. The lateral epibranchial tooth also is large, prominent, and acuminate.

The antero-lateral borders of the carapace are not so strongly convex.

As in *harpax* and *falcidigitis*, the 6th segment of the abdomen of the adult male is a little longer, its length very slightly exceeding its distal breadth, and its sides are more concave.

In the chelipeds the spine at the inner angle of the carpus is sharper.

The larger cheliped exhibits the same modifications according to age and sex as in *P. lugubris* and *P. harpax*.

In the largest male the carapace is $2\frac{1}{8}$ inches long, $2\frac{7}{8}$ inches broad, and $1\frac{1}{8}$ inch deep, and the greatly enlarged hand is $3\frac{5}{16}$ inches long, the length of the great curved dactylus being $2\frac{3}{8}$ inches.

From *P. harpax* this form differs only in the greater convexity of the carapace, the slightly sharper and more prominent external orbital and lateral epibranchial teeth, and the less oblique set of the epigastric crests. But it is more than probable that all these forms are nothing more than varieties of *P. lugubris*.

$\frac{6973}{3}$.	R. Bias.	F. Day.	1 ♂, 1 ♀.
$\frac{4112}{4}$.	Hardwar, Saharanpur, and Rurki.	J. Wood-Mason.	16 ♂, 8 ♀.
$\frac{7792\text{-}7807}{7}$ (part).	Darbhanga.	Miss Nora Coates.	5 ♂, 3 ♀.
$\frac{1198\text{-}1206}{10}$.	Dehra Dun.	F. Finn.	6 ♂, 3 ♀.
$\frac{5446}{10}$, $\frac{5449}{10}$.	Bijnor.	Museum Collector.	2 ♂, 1 ♀.
$\frac{5490}{10}$.	Loc. unrecorded.	W. T. Blanford.	4 ♂, 2 ♀.
$\frac{5492\text{-}3}{10}$.	Nagla, Naini Tal.	Museum Collector.	3 ♂.

Subgenus III.—Oziotelphusa, Müller.

Type: *Oziotelphusa hydrodromus* (Herbst).

No spine on upper border of merus of chelipeds; no large spines or teeth —other than perhaps the external orbital angle and the lateral epibranchial tooth—on the antero-lateral borders of the carapace.

The epigastric crests are sharpish and are in advance of and quite independent of the post-orbital crests.

The exopodite of the external maxillipeds carries a long, strong, plumose flagellum.

The cervical groove runs in the direction of the outer orbital tooth, becoming indistinct just behind the post-orbital crests.

As the generic name *Hydrodromus* is occupied, P. Müller's name, *Oziotelphusa*, may stand for this subgenus, though not in the sense proposed by that author.

The Indian species may be tabulated as follows:—

I. The free edge of the "front" proper and the antennular edge of the front are separate:—
  i. Post-orbital crests ending well in rear of the lateral epibranchial tooth, which is small . . . . . *P. hydrodromus.*
  ii. Post-orbital crests ending almost on a level with the lateral epibranchial tooth, which is prominent and acute . . . *P. bouvieri.*

II. The free edge of the front is identical with the antennular edge; legs long and slender, the propodite of the 2nd pair more than three times as long as broad . . . . . *P. sp.*

24. Paratelphusa (Oziotelphusa) hydrodromus, Herbst. (Fig. 60.)

Potamon (*Potamon*) *hydrodromus* (Herbst), *senex* Fabr., and *wagrakarowensis* Rathbun, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., pp. 287, 292 (*ubi synon.*), pl. xii., figs. 1-4.

Telphusa (*Oziotelphusa*) *hippocastanum*, Müller, Verh. Nat. Ges. Basel., VIII., 1887, p. 482, pl. v., fig. 7.

Carapace rather strongly convex fore and aft; its length in old males is about two-thirds its greatest breadth, but in adult females and in smaller

individuals of both sexes its length is three-fourths its greatest breadth, or even more; its depth is half its length; its surface is, to the naked eye, quite smooth, except for a very fine striæ which pass from the side-walls across the postero-lateral borders.

The cervical groove is distinct but rather superficial; it disappears altogether just behind the post-orbital crests, at a point in line with the orbital tooth. The regions—gastric, cardiac, and epibranchial—are quite well defined; the small pair of præcardiac facets are distinct but faint; the narrow tip of the mesogastric area is distinguishable behind the narrow groove that separates the epigastric crests.

Front in the adult about a third the greatest breadth of the carapace, with convergent sides, and only moderately declivous; its free edge is sharp and broadly bilobed. The fold of the front that is turned in to form the inter-antennular septum and the roof of the antennular fossæ has a distinct edge of its own independent of the free sharp edge of the "front" proper.

Orbits broad; external orbital tooth blunt and not separated from the lower border of the orbit by a gap as it is in the great majority of species of *Potamon*.

Antero-lateral borders of carapace convex, cristiform, smooth, and entire in old individuals, very finely crenulate in younger individuals; lateral epibranchial tooth well formed but rather blunt. Postero-lateral borders ill defined, convergent.

Epigastric crests sub-trenchant, sub-crescentic, overlapping and slightly in advance of the post-orbital crests. Post-orbital crests trenchant, sinuous, ending in line with, but well behind, the lateral epibranchial tooth. In the groove between the post-orbital crest and the orbital edge there is often a small tubercle which is sometimes scrobiculate.

The abdomen of the adult male forms a broad-based triangle, owing to the narrowness of the three terminal segments compared with the basal segments; the 6th segment is nearly as long as broad, and the 7th is slightly longer than broad.

Basal (2nd) joint of antennal peduncle short; the succeeding joints are overlapped by the front.

The mandibular palp seems to consist of only two distinct joints; the distal joint consists of two lobes, a broad anterior lobe overhanging the mandible anteriorly, and a falciform lobe lying behind the incisor edge of the mandible.

All the maxillipeds have a strong flagellum to their exopodite. The merus of the external maxillipeds is rudely oblong, its breadth considerably exceeding its length.

Chelipeds unequal in both sexes; the merus has crenulate edges and very faint squamiform surface-sculpture, but the surface of the other joints is to the

naked eye practically smooth; the carpus has a strong sharp spine—with a small accessory cusp at base—at its inner angle; the fingers are a little longer than the palm, are stout and compressed, and, in the larger cheliped, they gape, but not immoderately, when the tips are apposed.

The legs are strong, but are shorter even than the smaller cheliped; the longer propodites are barely twice as long as broad, and are nearly as long as their dactyli.

In fresh-preserved specimens the carapace is either speckled or mottled, but not in specimens that have been many years in spirit.

In two large males the carapace is $1\frac{1}{2}$ inch long, $2\frac{1}{8}$ inches broad, and $\frac{3}{4}$ths inch deep; in two large females it is $1\frac{9}{16}$ inch long, $2\frac{1}{8}$ inches broad, and $\frac{9}{16}$ths inch deep; in some small males it is $\frac{11}{16}$ths inch long and only $\frac{14}{16}$ths inch broad.

$\frac{5515}{1}$.	Ranigunj, Low. Bengal.	J. Wood-Mason.	3 ♂, 6 ♀.
$\frac{6420}{3}$.	Dumagudin and Ellore.	W. T. Blanford.	10 ♂, 6 ♀.
$\frac{6697}{3}$.	Pondicherry.	Purchased.	2 ♂, 4 ♀.
$\frac{6899}{3}$.	Madras.	J. Wood-Mason's servant.	1 ♂, 4 ♀.
$\frac{6977}{3}$.	Calcutta.	J. Wood-Mason.	1 ♂.
$\frac{6998}{3}$.	Madras.	F. Day.	4 ♂, 2 ♀.
$\frac{4003}{4}$.	Barabhoom, Low. Bengal.	Museum Collector.	5 ♂.
$\frac{4012}{4}$.	Allahabad.	G. Dobson.	1 ♂.
$\frac{4049\text{-}52}{4}$.	Madras.	Purchased.	3 ♂, 4 ♀.
$\frac{3169}{5}$, $\frac{3174}{5}$.	Loc. (?)	Karáchi Museum.	1 ♂, 3 ♀.
$\frac{3281\text{-}89}{7}$.	Trivandrum.	Travancore Museum.	3 ♂, 7 ♀.
No Number.	Travancore.		9 ♂, 6 ♀.
$\frac{7714\text{-}23}{9}$	Trivandrum.		6 ♂, 4 ♀.
$\frac{1788\text{-}95}{10}$.	S. India.		4 ♂, 3 ♀.
$\frac{5093}{10}$.	Ramnád, Madura.	N. Annandale.	1 ♀.
$\frac{5716}{10}$.	Sur Lake, Orissa.		3 ♂, 3 ♀.
$\frac{5731\text{-}32}{10}$.	Travancore.		5 ♂, 7 ♀.
$\frac{5742}{10}$.	Pallode, Travancore.		6 ♂, 3 ♀.

Almost all the above have the post-orbital tubercle said to be characteristic of "*Potamon*" *wagrakarowensis*.

$\frac{3569\text{-}83}{7}$.	Calicut.	G. Hadfield.	24 ♂, 7 ♀.
$\frac{6976}{5}$.	Shervaroy Hills.	F. Beddome.	1 ♀.
$\frac{5431}{10}$.	Bankura, Low. Bengal.	C. R. M. Green.	1 ♀.
$\frac{5739\text{-}40}{10}$.	Shencottah, Travancore.	N. Annandale.	8 ♂, 10 ♀.

25. Paratelphusa (Oziotelphusa) hydrodromus, var. (?)

This is a small and immature male, and I do not know what to make of it. It is like *hydrodromus*, but the post-orbital crests are very strongly sinuous, the inner half being oblique and the outer half running into the epibranchial tooth; they are also more overlapped by, and more in rear of, the epigastric crests.

$\frac{5729}{10}$.	Vembanaad Lake, Travancore.	N. Annandale.	1 ♂ (immature).

26. Paratelphusa (Oziotelphusa) bouvieri, Rathbun. (Fig. 61.)

Potamon (*Potamon*) *bouvieri*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, p. 293 (*ubi synon.*), pl. xii., fig. 5.

Agrees very closely with *Paratelphusa hydrodromus*, and differs only in the following particulars:—

The carapace (at least in adult males) is not so convex; it is closely covered with a fine furfuraceous pubescence beneath which it is closely and minutely granular; its antero-lateral borders are much less convex and the lateral epibranchial teeth are larger, more prominent, and sharper; the oblique striæ crossing the postero-lateral borders are more numerous and more distinct; the postero-lateral borders are less convergent.

The front is broader, its breadth in the adult being decidedly more than a third the greatest breadth of the carapace, and is less declivous.

The post-orbital crests are straighter and more transverse, and they run almost to the base of the lateral epibranchial spine.

The legs are slightly stronger and longer.

$\frac{3601\text{-}5}{7}$, $\frac{3584\text{-}88}{7}$.	Yerkád, Shervaroy Hills.	W. Daly.	9 ♂, 6 ♀.

The above form is probably only a hill variety of *P. hydrodromus*.

27. Paratelphusa (Oziotelphusa), sp.

A single female specimen, mature, but much broken, from the Garo Hills. Its carapace is $\frac{13}{16}$ths inch long, $1\frac{1}{16}$ inch in greatest breadth, and $\frac{6}{16}$ths inch deep. It probably belongs to the same group as *hydrodromus*, having (1) the same form of mandibular palp; (2) flagellate exopodites to the maxillipeds; and (3) a cervical groove that runs towards the outer orbital teeth but becomes lost before reaching the post-orbital crests. Also the epigastric crests overlap, and are in advance of and independent of the post-orbital crests, and are thin and almost trenchant.

The characteristic features of the species, so far as they can be made out from the single damaged specimen, are as follows:—

The front is square-cut and vertically deflexed, and has its edge so much turned in that the antennular fossæ are mere chinks; its edge is practically straight and is not reduplicated as it is in the two preceding species.

The præcardiac region and an area of the epibranchial region on either side of it are considerably sunken.

The epigastric crests are oblique. The post-orbital crests are thin and subtrenchant in their inner half, and then become inflated and indistinct, but can be traced to the lateral epibranchial tooth.

The legs are long and slender; in the second pair the propodites are about three and a half times as long as broad.

$\frac{4022}{4}$. Garo Hills. H. H. Godwin-Austen. 1 ♀.

Subgenus IV.—Phricotelphusa.

Type: *Phricotelphusa callianira*, de Man.

No spine on upper border of merus of chelipeds; no large spines or teeth —except, perhaps, the outer orbital angle and a lateral epibranchial tooth—on antero-lateral borders of carapace.

Epigastric crests sharp or sharpish, independent of and well in advance of the sharp post-orbital crests.

The exopodite of the external maxillipeds is non-flagellate in all the species but one, and in that species it is variable in size and not constant in occurrence.

The cervical groove is distinctly cut only where it bounds the mesogastric area posteriorly; elsewhere it is hard to trace.

The antennal flagellum is always short, and may be vestigial and hidden, or altogether wanting.

All the Indian species are small. They may be tabulated as follows, for convenience of identification :—

I. One pair of epigastric crests present as usual; exopodite of external maxillipeds as long as the ischium, which is longitudinally grooved on the ventral surface :—
  i. Epigastric crests with trenchant edge; epibranchial tooth prominent; 6th abdominal segment of adult male as long as broad; antennal flagellum small but distinct . . . . . *P. callianira.*
  ii. Epigastric crests comparatively obtuse; epibranchial tooth small or obsolescent :—
    1. Antennal flagellum vestigial, not visible without dissection; the vertically-deflexed portion of the front forms a distinct facet . *P. elegans.*
    2. Antennal flagellum small but distinct; no well-defined frontal facet :—
      a. Exopodite of external maxillipeds with or without flagellum; epigastric crests distinct . . . . . *P. gageii.*
      b. Exopodite of external maxillipeds without a flagellum; epigastric crests indistinct . . . . . *P. campestris.*

II. Two pairs of epigastric crests, one pair in rear of the other; exopodite of external maxillipeds only about half as long as the ischium, which is not longitudinally grooved; no antennal flagellum . . . . *P. carinifera.*

Or, the species of *Phricotelphusa* may be tabulated thus :—

I. Exopodites of external maxillipeds non-flagellate :—
  i. One pair of epigastric crests :—
    1. Antennal flagellum small but visible :—
      a. Epigastric and post-orbital crests thin and sharp . . *P. callianira*
      b. Epigastric and post-orbital crests indistinct . . *P. campestris.*
    2. Antennal flagellum vestigial and completely hidden under the front . . . . . *P. elegans.*
  ii. Two pairs of epigastric crests . . . . . *P. carinifera.*

II. Exopodites of external maxillipeds sometimes flagellate, one pair of epigastric crests which are rather obtuse; antennal flagellum small but visible . *P. gageii.*

The subgenus *Phricotelphusa* graduates into the next subgenus *Liotelphusa* by way of *P. campestris* and *P. gageii.* In *campestris* the epigastric and post-orbital crests are indistinct; in *gageii* the exopodite of the external maxillipeds may be flagellate.

28. Paratelphusa (Phricotelphusa) callianira, de Man. (Fig. 62.)

Telphusa callianira, de Man, Journ. Linn. Soc. Zool., XXII., 1887, p. 96, pl. vi., figs. 1-3.
Potamon (Potamon) callianira, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, p. 303 (*ubi lit.*).

Carapace squarish and flattish, its length exceeding three-fourths its greatest breadth, its depth less than half its length; its surface is finely pitted under a lens, and the vicinity of the lateral borders is beset with fine oblique ripples that pass across from the side-walls.

Cervical groove well graven only where it defines the mesogastric area posteriorly, elsewhere very broad and vague, and running towards the lateral

epibranchial tooth. The regions of the carapace are not very well defined. The tip of the mesogastric area is hardly distinguishable apart from the groove separating the epigastric crests. The epibranchial regions are somewhat tumid just behind the wings of the broad shallow cervical groove, the tumidity almost forming a transverse ridge.

Front in the adult about two-fifths the greatest breadth of the carapace, well deflexed, square-cut, with the free edge nearly straight; there may be a few small tubercles on its dorsal surface, and some of them tend to fall in a line parallel with its edge.

External orbital angle well formed but not prominent, not separated from the lower border of the orbit by any gap.

Antero-lateral borders of carapace short, sharp, but scarcely crest-like, not denticulate; lateral epibranchial tooth small but distinct and sharp.

Epigastric crests with a sharp sub-crescentic edge, overlapping, and well in advance of, the sharp post-orbital crests. Each post-orbital crest consists of two portions, an inner and longer and nearly straight portion, which ends just inside the line of the orbital tooth, and an outer shorter (and sometimes less distinct) portion lying somewhat obliquely behind the outer end of the main part of the crest.

In the abdomen of the adult male, both the 6th and the 7th segments are slightly longer than broad.

Antennal flagellum very short, but quite visible.

In the external maxillipeds the exopodite is longer than the ischium and is non-flagellate; and the merus is much broader than long; the longitudinal groove on the ventral surface of the ischium is faint, sometimes very faint.

The terminal joint of the mandibular palp is bifurcate from the base, and consists of two lobes—a broad anterior lobe overlapping the ventral surface of the mandible, and a narrower falciform lobe which lies behind the incisor edge of the mandible.

The chelipeds are very unequal in the adult male, but are subequal in the female; merus and carpus with fine squamiform sculpture, hand practically smooth; carpus with the usual spine at its inner angle; in the larger cheliped of the male the dactylus, which is barely as long as the palm, is strongly arched and meets the fixed finger only at tip.

The legs are considerably longer than the smaller cheliped, and the posterior border of the propodites is armed with sharp, horny-looking spines like those of the dactyli; the longer propodites are about twice as long as broad, and are shorter than the broad compressed dactyli.

In the largest female, which is fully adult, the carapace is $\frac{9}{16}$ths inch long and $\frac{11}{16}$ths inch broad.

$\frac{8181}{6}$.	Mergui.	J. Anderson.	3 ♂, 4 ♀ (among which are, probably, the types of the species).

29. Paratelphusa (Phricotelphusa), sp. prox. callianira (*a*).

This species resembles *callianira* in every particular except the following :—

Under a lens the surface is not only pitted, but also very finely and copiously reticulated and granulous.

The wings of the cervical groove are even shallower and vaguer.

The epigastric and post-orbital crests are not so distinct; the former are less in advance of the latter; and the latter end *as distinct crests* near the middle line of the orbit.

[In the male abdomen the length of the 6th segment only equals its distal breadth, and the 7th segment is only as long as broad; but the single specimen is not adult, so that this difference is of no account.]

The exopodite of the external maxillipeds does not reach quite to the end of the ischium.

In the smaller cheliped the palm is covered with small vesiculous granules and the fingers are elegantly fluted with lines of somewhat similar granules. The larger cheliped is missing.

The only specimen in the collection is an immature male with a carapace $\frac{9}{16}$ths inch long and $\frac{11}{16}$ths inch broad.

$\frac{3117}{5}$. Egaye, Tavoy. Museum Collector. 1 ♂.

I do not care to name the species from a single specimen, especially as I have not a good series of *callianira* for comparison.

30. Paratelphusa (Phricotelphusa), sp. prox. callianira (*b*).

$\frac{5443}{10}$ Jungle Stream, Dawna Hills, Lower Burma; collected by Dr N. Annandale. Four young individuals resembling the above, but having the greater part of the carapace crisply granulous. The epigastric and post-orbital crests are as distinct and sharp as in *callianira*, but have the same disposition as in the Tavoy form just described.

31. Paratelphusa (Phricotelphusa) elegans, de Man. (Fig. 63.)

Potamon, n. sp., de Man, Ann. Mus., Genov. (2), XIX., p. 412 (*Potamon elegans*, p. 416), pl. v., fig. 8.
Potamon (*Potamon*) *elegans*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, p. 304.

This species agrees in all main points with *callianira*, differing only in the following particulars :—

The distal part of the front is vertically deflexed, and this deflexed portion forms a distinct facet separated from the rest of the frontal region by a transverse ridge.

The tip of the outer orbital angle is quite flush with the borders of the orbit. The lateral epibranchial tooth also is extremely small and little prominent—sometimes obsolescent.

The epigastric and post-orbital crests, though otherwise similar, are not nearly so sharp and salient; the epigastric crests are blunt, rugulose, and oblique; the outer and posterior of the two portions into which the true post-orbital crests are divided is often indistinguishable from the short oblique wrinkles of the neighbouring part of the carapace.

In the male abdomen the length of the 6th segment only equals its distal breadth.

The antennal peduncle is completely excluded from the orbital canthus, the orbital gap being almost closed, and *the antennal flagellum is vestigial* and is invisible without dissection.

In the external maxillipeds the exopodite is barely longer than the ischium.

In the larger cheliped of the male the carpus is as smooth as the hand, and the strongly-arched dactylus is as long as or longer than the palm.

In the largest adults the carapace is just under $\frac{8}{10}$ths inch long and just over $\frac{9}{10}$ths inch broad.

Though there are a good many specimens in the collection, they are old and brittle and will scarce bear handling.

$\frac{4071}{4}$.	Kakhyen Hills.	J. Anderson.	27 specimens of all ages.
$\frac{4077}{4}$.			22 specimens of all ages.

32. Paratelphusa (Phricotelphusa) gageii, Alcock. (Fig. 26.)

This species is closely related to *elegans* and *callianira*.

In life and in fresh spirit specimens the animal is, except on the ventral surface of the legs, a dark greenish-purplish brown, sometimes almost black.

Carapace not much convex, its length about three-fourths its breadth, its depth less than half its length; its surface uneven, under a lens finely pitted; all along its lateral borders are very fine, short, oblique wrinkles and ridges more or less continued from the side-walls.

Cervical groove broad and deep where it defines the mesogastric area, elsewhere only vaguely distinguishable as an inequality of level very imperfectly defining the wings of the gastric region. The cardiac region can just be made out, and the two small præcardiac facets, though sunken, are distinct. In most specimens there are three shallow punched-out pits or scars on either side of the gastric region.

Front in the adult more than a third the greatest breadth of the carapace, declivous to a point near the edge, and then becoming nearly vertically deflexed; square-cut, very feebly bilobed, its surface slightly broken. The outer angle of the orbit does not form a tooth, as the upper and lower borders of the orbit meet almost flush there.

Antero-lateral borders of carapace short, defined but not crest-like; sometimes they form an almost unbroken curve from the orbit; sometimes an epibranchial notch or small denticle is present, this being usually the case in young individuals.

Epigastric crests low, broad, blunt, oblique, rugulose; separated from and slightly in advance of the post-orbital crests. Post-orbital crests transverse, low, but fairly sharp, usually becoming more or less indistinct or blunt at the level of the outer orbital angle.

Length of 6th segment of male abdomen barely equal to its distal breadth in the adult.

Antennal flagellum extremely short.

Terminal joint of mandibular palp bilobed as described in *hydrodromus* and *callianira*, etc.

In the external maxillipeds the exopodite is longer than the ischium, and is usually non-flagellate; sometimes, however, it carries a short filamentous flagellum; the ischium is longitudinally grooved, and the merus is a good deal broader than long.

Chelipeds nearly equal in the female, very unequal in the adult male; the surface of the merus—as also in the legs—is transversely rugulose; the carpus has its exposed surface rugulose and its inner angle coarsely dentiform; the hand is, to the naked eye, practically smooth. In the larger cheliped of the adult male the palm is longer than high, and is slightly shorter than the fingers; and the fingers are unevenly toothed and meet only at the tip, the curve of the dactylus being very strong in old males. In these old males the length of the hand and fingers considerably exceeds the breadth of the carapace. In the smaller cheliped of the male, as in both chelipeds of the female, the fingers are straight.

Legs about as long as smaller cheliped; posterior edge of propodites armed with strong spines like those of the dactyli; dactyli compressed, longer than propodites; longer propodites about twice as long as broad. Small tufts of bristles are present on the three terminal joints of the legs.

In the largest adults of both sexes the carapace is $\frac{3}{4}$ths inch long and 1 inch broad.

In quite young individuals the post-orbital crests are sharper, and more of the form of those of *callianira*.

The flagellum of the exopodite of the external maxillipeds is a variable

feature; it may be present on one side only, and may be a distinct filament or a mere papilla.

$\frac{6898}{3}$.	S.E. Sikkim.	W. T. Blanford.	2 ♂, 2 ♀.
$\frac{6930}{3}$.	Darjiling.	J. Gammie.	4 ♂.
$\frac{6968}{3}$.	Sikkim.	W. S. Atkinson.	1 ♂.
$\frac{4310}{4}$.	Buxa, Bhutan.	Museum Collector.	1 ♂.
$\frac{5012}{10}$.	Sureil, Kurseong.	A. Alcock.	18 ♂, 24 ♀ (including types).
$\frac{5438}{10}$.	Kurseong.	N. Annandale.	14 ♂, 7 ♀.
$\frac{5718}{10}$.	Kurseong.	Museum Collector.	1 ♂, 1 ♀.
$\frac{5878}{10}$.	Kurseong, 5000 ft.	N. Annandale.	5 ♂, 5 ♀.

Phricotelphusa gageii demonstrates the close connection between the subgenera *Phricotelphusa* and *Liotelphusa*, both in the form of the exopodite of the external maxillipeds and in the form of the male abdomen; its epigastric crests again, though quite distinct, are blunter than in any other species of its subgenus, except the next species, which exhibits the connection between the two subgenera even more clearly.

33. Paratelphusa (Phricotelphusa) campestris, n. sp. (Fig. 27.)

This species from the Delta of Lower Bengal is very closely related to *P. gageii* from the hills. It may, in fact, be regarded as a *gageii* still further on the way towards *Liotelphusa*. It may be described by comparison with that species (*gageii*), from which it differs only in the following particulars:—

The colour, in spirit, is greenish-yellowish; the carapace is not so flat, its depth being half its length; the front is more distinctly bilobed; the external orbital angle forms a distinct tooth; the antero-lateral borders are not defined, and in the unique specimen there is no trace of an epibranchial tooth.

The epigastric crests are distinguishable, not as distinct elevations, but as oblique, elliptical, eroded patches. The post-orbital crests are low and blunt and faint.

In the external maxillipeds of the unique specimen neither exopodite has any trace of a flagellum, and the longitudinal groove of the ischium is extremely faint.

In the unique adult male specimen the carapace is a little over $\frac{5}{8}$ths inch long and not quite $\frac{5}{8}$ths inch broad.

$\frac{5533}{10}$.	Barnagore, near Calcutta.	A. Alcock.	1 ♂.

I describe this species from a single specimen, with a good deal of hesitation, and contrary to what I believe to be a sound rule. I do so only because,

coming from the plains, it is so very closely related to—indeed, it is hardly more than a variety of—a species living at an elevation of 5000 feet in the same great hydrographic basin, and because it seems to offer evidence confirmatory of Schenkel's theory of variations in *Potamonidæ*. Schenkel thinks that the cold and therefore more richly aerated waters of mountain torrents conduce to contraction of the branchial regions, and to flatness of the carapace in the crabs that live in them; and, conversely, that the greater difficulty of breathing in the warmer and therefore less aerated water of the plains leads to expansion of the gill-chambers and to convexity of the carapace. In *P. campestris* the carapace certainly is more convex, and its antero-lateral borders are more tumid, than they are in its near relative from the hill-streams.

I believe that this species may turn out to be a variety of *P. gageii*.

34. Paratelphusa (Phricotelphusa) carinifera, de Man. (Fig. 64.)

Telphusa carinifera, de Man, Journ. Linn. Soc. Zool., XXII., 1887, p. 100, pl. vi., figs. 4, 5.
Potamon (*Potamon*) *carinifer*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VI., 1904, p. 303 (*ubi lit.*).

This species may be compared with *callianira*, which it closely resembles, differing from it only in the following particulars:—

The length of the carapace is about three-fourths its greatest breadth: the carapace, therefore, is broader; the oblique ridges on the anterior part of the lateral epibranchial region are sharper and bolder; under a lens the surface of the carapace is more granulous or rugulose.

The front in the adult is more than two-fifths the greatest breadth of the carapace; its edge is more distinctly bilobed, and the angle formed at the junction of its edge with the edge of the orbit is distinctly produced in a lateral direction.

The antero-lateral borders of the carapace are sharper and more cristiform.

The epigastric crests are blunt and rugulose and oblique. *There is a second pair of sharp epigastric crests in rear of the normal pair and slightly behind the level of the post-orbital crests.* (The post-orbital crests are quite similar to those of *callianira*).

In the male abdomen the length of the 6th segment only equals its *distal* breadth.

In the external maxillipeds *the exopodite is only about half as long as the ischium*, and the longitudinal groove of the ventral surface of the ischium is altogether absent.

The antennal flagellum (which is abnormally short in *callianira*) *is altogether absent, and the peduncle is completely excluded from the orbit.*

In the largest adults of both sexes the carapace is $\frac{9}{10}$ths inch long, and $\frac{13}{16}$ths inch broad.

$\frac{2984\text{-}89}{10}$. Amherst, Tennaserim. A. R. S. Anderson. 4 ♂, 2 ♀.

Subgenus V.—Liotelphusa.

Type: *Liotelphusa levis*, Wood-Mason.

This subgenus is not sharply defined; it runs into *Phricotelphusa*, although the extremes in both cases are very distinct.

No spine on upper border of merus of chelipeds; antero-lateral borders of carapace not spinose.

Epigastric and post-orbital crests obscure; lateral epibranchial spine small or minute.

The exopodite of the external maxillipeds usually carries a long, strong, plumose flagellum.

The cervical groove is distinctly cut only where it defines the mesogastric area posteriorly.

All the Indian species are small. They may be tabulated as follows, along with the annectant forms classed with *Phricotelphusa*:—

I. Epigastric crests, at least, very inconspicuous; exopodite of external maxillipeds strongly flagellate (*Liotelphusa*):—	
i. Edge of the front simple; the length of the sixth abdominal segment of the adult male just equals its distal breadth:—	
1. Inner angle of carpus of chelipeds spiniform:—	
a. Carapace broadish; post-orbital crests quite inconspicuous	*P. levis*.
b. Carapace squarish; post-orbital crests fairly distinct at their outer extreme . . .	*P. levis*, var. *quadrata*.
2. Inner angle of carpus of chelipeds rounded off .	*P.* sp. prox. *levis*.
ii. The free edge of the front is distinct from the antennular edge of the front; the length of the 6th abdominal segment of the male exceeds its *maximum* breadth .	*P. austrina*.
II. Epigastric and post-orbital crests distinct; exopodite of external maxillipeds sometimes flagellate, sometimes not . .	*Phricotelphusa gageii*.
III. Epigastric and post-orbital crests indistinct; exopodite of external maxillipeds non-flagellate	*Phricotelphusa campestris*.

35. Paratelphusa (Liotelphusa) levis, Wood-Mason. (Fig. 65.)

Telphusa levis, Wood-Mason, Journ. Asiatic Soc., Bengal, XL., 1871, pt. II., p. 201, pl. xiv., figs. 1-6.
Potamon (*Geotelphusa*) *levis*, Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VII., 1905, p. 218 (*ubi lit.*).

Carapace rather square-cut, deep, its length about three-fourths its greatest breadth, its depth half its length; its surface is smooth, except for some fine oblique striæ near the lateral borders.

Cervical groove restricted to a crescentic depression delimiting the mesogastric area posteriorly, and there not very deep. Hence the several regions of the carapace are more to be imagined than defined. As for

areolation, a shallow post-frontal groove, faintly bifurcating, indicates the usual fore-lobe of the mesogastric area, and there are four faint oval facets in a transverse series between the gastric and cardiac regions.

Front in the adult about two-fifths the greatest breadth of the carapace, square-cut, strongly deflexed, smooth-edged, very faintly bilobed. Outer orbital angle not prominent, not separated from the lower border of the orbit by a gap.

Antero-lateral borders of carapace well defined, short; lateral epibranchial tooth sometimes small and subacute, sometimes a mere granule.

Epigastric crests low, blunt, indistinct, hardly in advance of, and not distinctly separated from the blunt and indistinct post-orbital crests; the latter can be traced to the epibranchial tooth.

Abdomen of adult male a broad-based triangle in outline; the 6th segment has strongly convergent sides, and its length just equals its distal breadth; the 7th segment is as long as its proximal breadth, and has a broadly-rounded apex.

There is nothing peculiar about the antennæ, except that the flagellum is very small.

Mandibular palp of the typical *Paratelphusa* form, the terminal joint being bilobed or bifurcate in the way already described.

In the external maxillipeds the exopodite is longer than the ischium, and carries a strong, plumose flagellum, the ischium is longitudinally grooved, and the merus is quadrangular and broader than long.

In the adult male, but hardly in the female, the chelipeds are unequal—markedly so in old males. The merus is distinctly squamulose, the carpus is much less distinctly so, and the hand is so very indistinctly so as usually to look quite smooth; the usual spine is present at the inner angle of the carpus; the fingers are longer than the palm, and are fairly evenly toothed and nearly straight; but in the enlarged chelæ of old males the teeth are uneven, some of them being enlarged, and the dactylus is arched so that the fingers gape when closed; in these old males the fixed finger is often shorter than the palm, and may be a little bent.

Legs a little longer than the smaller cheliped; the longer propodites are more than twice as long as broad, and shorter than their dactyli.

In a large adult female the carapace is $\frac{11}{16}$ths inch long, $\frac{15}{16}$ths inch broad, and $\frac{13}{32}$nds inch deep.

In recent spirit specimens the colour is a dark greenish violet, becoming bronzy-red on the chelipeds.

This species is undoubtedly very close to *P.* (*Phricotelphusa*) *gageii;* but in that species the carapace is comparatively flat, the crests are sharp, and the epigastric crests are distinctly in advance of and independent of the post-orbital crests.

$\frac{6965}{3}$.	Cherra Punji.	H. H. Godwin-Austen.	2 ♂ (types).
$\frac{6903}{3}$.	Cherra Punji.	H. H. Godwin-Austen.	2 ♂.
$\frac{6980}{3}$.	Cachar.	L. Bourne.	1 ♀.
$\frac{5802}{10}$.	Cherra Punji.	Museum Collector.	1 ♂, 5 ♀.
$\frac{5532}{10}$.	Shillong.	H. H. Godwin-Austen.	2 ♀.

36. Paratelphusa (Liotelphusa) lævis, Wood-Mason, *var.*

I think this abnormality worth separate notice, because it shows the closeness of the relation to *Phricotelphusa*.

The carapace is not less convex, but the epigastric crests are more independent of the post-orbital crests, and in the latter crests there is a faint break in the longitude of the inner limit of the outer orbital angle, which cuts off a little oblique outlying lobe from the crest.

$\frac{4011}{4}$.	Cherra Punji.	H. H. Godwin-Austen.	2 ♂.

37. Paratelphusa (Liotelphusa) levis, var. quadrata. (Fig. 28.)

In this variety the carapace is almost square, its length is seven-eighths its greatest breadth. The cervical groove is hard to make out in *any* part of its course. The outer orbital angle and the lateral epibranchial tooth are more prominent. The antero-lateral borders of the carapace are subcristiform. The epigastric crests are not so plainly continuous with the post-orbital crests, and the latter are sharper, especially in their outer half.

In a large adult female the carapace is $\frac{11}{16}$ths inch long, $\frac{13}{16}$ths inch broad, and $\frac{6}{16}$ths inch deep.

The variety is easy to recognise.

$\frac{6948}{3}$, $\frac{6964}{3}$.	Naga Hills.	— Butler.	1 ♂, 1 ♀.
$\frac{6983}{3}$.	Goalpara.	H. B. Houghton.	2 ♀.
$\frac{6985}{3}$, $\frac{4038}{4}$ (types).	Sibsagar.	S. E. Peal.	2 ♂, 3 ♀.
$\frac{6997}{3}$.	Naga Hills.	S. E. Peal.	11 ♂, 13 ♀.
$\frac{4081}{4}$.	Assam.	— Butler (?)	4 ♂, 5 ♀.
$\frac{4026}{4}$.	Khási Hills.	H. H. Godwin-Austen.	1 ♂, 1 ♀.

38. Paratelphusa (Liotelphusa) austrina, Alcock. (Fig. 29.)

Carapace convex, square-cut, its length nearly seven-eighths its breadth, its depth more than half its length; to the naked eye its surface is smooth; the regions are not defined, the cervical groove is hardly visible, and even the post-frontal mesogastric furrow is indistinct.

Front not much more than two-fifths the greatest breadth of the carapace, strongly deflexed, very distinctly bilobed; as in *Paratelphusa hydrodromus* and *bouvieri* and few other Indian species, the free edge of the front proper is distinct from the edge that roofs the antennular fossæ—*i.e.*, the edge of the front is distinctly double. Outer orbital angle subacute, not separated from the lower border of the orbit by a gap.

Antero-lateral borders of carapace short, little arched; lateral epibranchial tooth small, subacute.

Epigastric and post-orbital crests only just distinguishable.

Three terminal segments of male abdomen much contracted; 6th segment narrow, with parallel sides, its length more than its proximal breadth.

Antennular fossæ not contracted; antennal flagellum of good length. Mandibular palp of the typical *Paratelphusa* form, the terminal segment being bifurcate from its base.

In the external maxillipeds the exopodite is longer than the ischium, and has a strong flagellum; the ventral surface of the ischium is longitudinally grooved, and the merus is quadrangular and slightly broader than long.

Chelipeds unequal in the adult male, smooth to the naked eye; carpal spine acute; palm of large cheliped inflated, nearly as high as long; fingers about as long as palm, pointed, none of the teeth much enlarged.

Legs longer than smaller cheliped; dactyli longer than propodites.

In the unique adult male specimen the carapace is nearly $\frac{7}{16}$ths inch long, and $\frac{1}{2}$ inch broad.

$\frac{4003}{1}$. S. India. F. Beddome. 1 ♂ (type).

I do not care about describing a new species of *Potamonidæ* from a single specimen, but this species is clearly distinct from anything else.

In general appearance it is much like *P. levis*, var. *quadrata*, but the bilobed front, with double edge like that of *P. hydrodromus*, at once distinguishes it, as does the long narrow 6th abdominal segment of the male.

39. Paratelphusa (Liotelphusa), sp. nov. prox. levis.

This species is not to be named, as it cannot be properly described from an imperfect specimen.

The shape of the carapace is square, as in *P. levis*, var. *quadrata*; the

carapace is nearly flat, not divided into regions, and marked only by the crescentic cervical groove where it defines the mesogastric region, and by the faint, post-frontal mesogastric groove.

The front is deflexed, square-cut, and of great breadth, considerably more than two-fifths the greatest breadth of the carapace, the unique specimen being apparently an old male.

There is a small lateral epibranchial tooth. The epigastric and post-orbital crests, though very faint, are quite apparent, and are oblique. The length of the 6th abdominal segment of the male equals its distal breadth.

The antennal flagellum is vestigial. The exopodite of the external maxillipeds is flagellate; the ischium is not longitudinally grooved; the merus is broader than long, and has its antero-external angle very square-cut. The mandibular palp has the terminal segment bifurcate from the base.

Only one cheliped is present; it is quite smooth, has *the inner angle of the carpus rounded off*, a high inflated palm, and toothless fingers, the dactylus being curved strongly, and meeting the fixed finger only at tip.

The legs are stout, with peculiar long sparse bristles, chiefly on the posterior part of the propodites.

The carapace is $\frac{1}{2}$ inch long, and $\frac{3}{8}$ths inch broad.

$\frac{6967}{3}$. Pegu. S. Kurz. 1 ♂, broken.

Subgenus VI.—Globitelphusa.

Type: *Globitelphusa bakeri*, Alcock.

The species in this subgenus resemble *Liotelphusa* in the indistinctness of the epigastric and post-orbital crests and of the lateral epibranchial spine of the carapace; indeed, in most of the species these parts are more obscure than in any *Liotelphusa;* but along with this character the exopodites of the external maxillipeds are either devoid of a flagellum, or have a mere papilla-like vestige of one.

As in all the subgenera, except *Paratelphusa* itself, the antero-lateral borders of the carapace are not cut into spines, and there is no subterminal spine on the upper border of the merus of the chelipeds.

The cervical groove, as in *Phricotelphusa* and *Liotelphusa*, is well cut only where it defines the mesogastric area posteriorly—elsewhere it can not be, or can hardly be, traced.

This group consists of two sections. In one of them the species are very small and have a squarish carapace, which may either be tumid, as in *Liotelphusa*, or flattish, as in *Phricotelphusa*. The species of the other section have a carapace which for breadth and convexity rivals that of *Gecarcinucus*—these

are the typical forms. It might be advisable to separate these two sections, but I leave them together for the present.

The species of the "subgenus" may be tabulated as follows :—

I. Carapace strongly convex, almost cylindrical; much broader than long :—
  i. Side-walls of carapace smooth; flagellum of first and second maxillipeds vestigial :—
    1. Epigastric crests hardly distinguishable . . . *P. bakeri.*
    2. Epigastric crests visible as two isolated lumps . . . *P. cylindrus.*
  ii. Side-walls of carapace rugulose; flagellum of first and second maxillipeds well developed . . . . . *P. pistorica.*

II. Carapace squarish, flat or moderately convex, little broader than long. (Quite small species) :—
  i. Carapace flat; front, in adult, about two-fifths the greatest breadth of the carapace; 5th abdominal segment of the adult male much broader than long :—
    1. Fingers of chelæ pointed; dactyli of legs of normal length and hairiness . . . . . *P. gubernatoris.*
    2. Fingers of chelæ spoon-tipped; dactyli of legs short and very hirsute . . . . . *P. pilosipes.*
  ii. Carapace convex; front, in adult, half the greatest breadth of the carapace; 5th abdominal segment of the adult male *longer than broad* . . . . . *P. fronto.*

40. Paratelphusa (Globitelphusa) bakeri, Alcock. (Fig. 30.)

Carapace broad, very convex, subcylindrical, its length between two-thirds and three-fourths its greatest breadth, its depth exceeding half its length, its surface everywhere smooth, its regions barely distinguishable. Even the side-walls of the carapace are smooth.

The cervical groove is distinct only where it bounds the mesogastric area posteriorly. The post-frontal mesogastric groove is superficial and very indistinct—only just visible.

Front in adult from one-third to two-fifths the greatest breadth of the carapace, square-cut, almost vertically deflexed, nearly straight-edged. External orbital angle insignificant, the upper and lower borders of the orbit meeting almost flush at that point.

Antero-lateral borders of carapace well arched, blunt for the most part, but well enough defined. There is the merest trace of a lateral epibranchial denticle, and it is approximated to the orbit. Postero-lateral borders rather strongly convergent.

Epigastric crests recognisable, but very indistinct; the post-orbital crests are more distinct especially in their outer half, which curves forward.

In the abdomen of the male the 5th segment is short and broad, the 6th has convergent sides and its length barely equals its distal breadth, the 7th has a broadly-rounded tip and is very much longer than broad.

Antennal peduncle small and impacted; the flagellum short.

Mandibular palp typical of *Paratelphusa*, the terminal segment being bifurcate so that its two lobes embrace the incisor process of the mandible.

In the external maxillipeds the merus is as long as the short ischium, and is pointed, hairy, and non-flagellate; the ischium is grooved, and the merus is square-cut and slightly broader than long. In the 1st and 2nd maxillipeds the flagellum of the exopodite is vestigial.

Chelipeds unequal in both sexes, but much the more so in the adult male; surface of merus rugulose, of carpus and hand smooth; inner angle of carpus spiniform; fingers slender, longer than the palm in both chelæ, and pointed; in the smaller chelæ they are evenly toothed; in the larger chelæ of old males, but not of females and younger males, one or two teeth in each finger are much enlarged and the fingers meet only at tip.

Legs about as long as the smaller cheliped, somewhat slender; dactyli much longer than their propodites; propodites twice, or more, as long as broad.

In old males the dactylus of the larger chelæ is nearly half again as long as the palm.

In a fine old male the carapace is $\frac{3}{5}\frac{1}{2}$nds inch long, $\frac{3}{5}\frac{0}{2}$nds inch broad, and $\frac{1}{5}\frac{3}{2}$nds inch deep.

Young individuals of this species are very instructive; their carapace is neither so broad nor so convex, but has quite the shape of that of *levis;* the post-orbital crests are sharper and more distinct, and the lateral epibranchial denticle is fairly conspicuous.

Ex	$\frac{5518}{10}$.	Ganjam in N. Cachar.	E. C. S. Baker.	9 ♂, 6 ♀ (including types).
	$\frac{3360}{7}$.	Cachar.	J. Wood-Mason.	1 ♀.
	$\frac{5544}{10}$.	Ganjam in N. Cachar.	Purchased.	1 ♂, 1 ♀.

41. Paratelphusa (Globitelphusa) bakeri, var. cylindrus, Alcock.

In this variety the carapace is barrel-like, its branchial regions being greatly inflated, and its maximum depth being about seven-ninths its length. Owing to this inflation the branchial regions are separately distinguishable, and in one specimen they culminate in an obliquely-longitudinal ridge on either side of the carapace.

The epigastric crests are distinguishable as little, round, low elevations; but the post-orbital crests are less distinct than in the type.

In the larger cheliped of the male the enlarged teeth of the fingers are much coarser, especially a large double one in the fixed finger.

In an adult male the carapace is $\frac{5}{8}$ths inch long, $\frac{4}{8}$ths inch broad, and $\frac{7}{16}$ths inch deep.

In its more distinct epigastric crests this variety resembles the following

species (*G. pistorica*), but the flagella of the exopodites of the 1st and 2nd maxillipeds are mere vestiges, and the exopodite of the external maxillipeds is non-flagellate.

$\frac{6975}{3}$.	Naga Hills.	S. E. Peal.	3 ♂, 1 ♀ (including types).
$\frac{6934}{3}$.	Assam.		6 ♂.

42. Paratelphusa (Globitelphusa) pistorica, Alcock. (Fig. 31.)

This species is closely related to *G. bakeri*, more particularly to the variety *cylindrus*, resembling the latter in its barrel-like carapace and in the fact that the epigastric crests are usually two distinct little lumps.

It differs from both, however, in the following particulars, 8 males and 7 females having been examined :—

The side-walls of the carapace are closely covered with fine, oblique rugæ which pass over the postero-lateral borders. These are quite visible to the naked eye, whereas in *G. bakeri* and its variety it is uncommon, even with a lens, to make out much in the way of rugæ.

The epigastric crests, which in typical specimens of *G. bakeri* can only just be made out, are here, as in the variety *cylindrus*, plainly manifest as two little widely-separated lumps; this is almost always the case.

The exopodites of the external maxillipeds may have a rudimentary papillar palp; but those of the 1st and 2nd maxillipeds always carry a flagellum of normal length. Now, in none of the specimens of *G. bakeri* and its variety (numbering in all 28) in the collection have the 1st and 2nd maxillipeds anything more than a vestige of a flagellum.

In the chelipeds the merus is more rugose, and the surface of the carpus and the upper border of the hand are sometimes faintly rugulose, and sometimes the fingers are scabrous, especially near the tip; also, the fingers of the larger chelæ are stouter, and their enlarged teeth are coarser. But the chelipeds vary a good deal; a more important point is that in the female they are subequal.

The legs are decidedly stout, not slender as in *G. bakeri*.

In a large male the carapace is $\frac{7}{8}$ths inch long, $1\frac{3}{16}$ inch broad, and $\frac{9}{16}$ths inch deep.

$\frac{6993}{3}$.	Cachar.	E. B. Baker.	2 ♂, 2 ♀.
$\frac{4010}{4}$.	Sibsagar, Assam.	Museum Collector.	1 ♂.
$\frac{6582\text{-}90}{9}$.	Darband Pass, Cachar.	J. Wood-Mason.	5 ♂, 5 ♀ (including types).

43. Paratelphusa (Globitelphusa) gubernatoris, Alcock. (Fig. 32.)

Carapace flat, square, its length nearly seven-eighths its breadth, its depth less than half its length, its surface smooth to the naked eye, but under a lens pitted, and finely rugulose laterally.

Regions of carapace not defined; a fine crescent defining the mesogastric area posteriorly is all that exists of the cervical groove; a longish shallow groove separates the extremely faint epigastric crests.

Front in the adult about two-fifths the greatest breadth of the carapace, square, very strongly deflexed, its edge nearly straight, with pronounced orbital angles. Outer orbital angle not prominent, the upper and lower borders of the orbits meeting flush at that point.

Antero-lateral borders of carapace short, and nearly straight from the orbit backwards, the lateral epibranchial denticle being marked by a little nick.

Epigastric crests just distinguishable; post-orbital crests only just distinguishable at their outer ends near the lateral epibranchial denticle.

Abdomen of adult male a broad-based triangle in outline, the three terminal segments being much contracted; in the 6th segment *the distal breadth slightly exceeds the proximal breadth* and equals the length; the 7th segment has a broadly-rounded apex and its length equals its proximal breadth.

The mandibular palp is of the already described *Paratelphusa* type, the 1st and 2nd segments being indistinguishably fused and the terminal segment being bifurcate from the base.

In the external maxillipeds the exopodite is longer than the ischium and is usually non-flagellate, though a minute papillar vestige of a flagellum is occasionally present; the ventral surface of the ischium is not longitudinally grooved; the merus is much broader than long and its greatest length is at the outer border.

The antennular fossæ are of normal width and are widely open to the orbits as usual, the opening being loosely filled by the antennal peduncle as usual. (These points are mentioned in order that the species may not be confused with another superficially similar species from exactly the same locality). The basal (true 2nd) antennal joint is of fair size, but the succeeding joints are extremely small, and the flagellum is minute.

Chelipeds unequal in adults of both sexes, most so in the adult male; to the naked eye they appear smooth; the inner angle of the carpus is merely pronounced, not spiniform; in the smaller cheliped the fingers are about as long as the palm and are fairly straight; in the larger cheliped the palm is nearly as high as long, the fingers are about as long as the palm, one tooth in the fixed finger is conspicuously enlarged, and in the male there is a wide gap

between the fingers when the tips are in contact. In both chelipeds the fingers are pointed—*not* broad and spooned.

Legs long, the 2nd (longest) pair being at least as long as the larger cheliped; there may be some short bristles on the dactyli, but none of the joints are hirsute; the spines on the distal part of the lower border of the propodites are very distinct; the longer propodites are about twice as long as broad and are not quite as long as their dactyli; the four rows of spines on the dactyli are very conspicuous.

In a large adult male the carapace is $\frac{9}{16}$ths inch long, $\frac{31}{32}$nds inch broad, and $\frac{1}{4}$th inch deep.

$\frac{4046}{4}$.	Mahableshwar.	Donor unrecorded.	35 ♂, 22 ♀ (including types).

44. Paratelphusa (Globitelphusa) pilosipes, Alcock. (Fig. 33.)

This species is distinguished by its blunt spooned fingers and by the short, blunt, thickly hirsute dactyli of the legs.

It is closely related to *P. gubernatoris*, differing only as follows:—

The carapace is a little broader; the cervical groove is even less distinct; the outer orbital angle is even broader and blunter; the antero-lateral borders of the carapace are a little more convex immediately behind the orbit, and the lateral epibranchial tooth is even more obscure, or is altogether absent.

The epigastric and post-orbital crests can be imagined rather than discerned, though a shallow longitudinal mesogastric groove is present.

The antennæ are similar in form, but the flagellum is vestigial or absent.

The chelipeds are similar as far as the hand, in which the fingers are stout, a good deal shorter than the palm in the larger cheliped, and have broad, spooned, or hoof-like tips; none of their teeth are enlarged.

In the legs the propodites are sparsely beset and the dactyli are thickly clothed with tufts of bristles; the dactyli are clumsy-looking and are shorter than their propodites.

In all other respects this species agrees with *P. gubernatoris;* it may indeed be merely a variety of it, but I have not enough specimens to form a judgment; or it may possibly be a second form of the male of *gubernatoris.*

$\frac{5549}{10}$.	Mahableshwar.	Donor unrecorded.	5 ♂ (types).

45. Paratelphusa (Globitelphusa) fronto, Alcock. (Fig. 34.)

Carapace squarish, its length approaching seven-eighths its greatest breadth; convex, its depth more than half its length, its surface to the naked eye smooth.

Regions of carapace not defined. The cervical groove shows—(1) as a very

fine, superficial, and indistinct groove where it delimits the mesogastric area posteriorly, and (2) on either side, as a sort of scar-like marking between the gastric and branchial regions. The post-frontal mesogastric groove is long and shallow, invading the frontal region and distinctly bifurcating posteriorly.

Front in the adult *half the greatest breadth of the carapace*, square-cut, almost vertically deflexed, with a smooth, almost straight edge. *External orbital angle obsolete*, the lower border of the orbit being more prominent than the upper border and meeting it without any break.

Antero-lateral borders of carapace very short, very slightly arched, subcristiform. Lateral epibranchial tooth distinct but hardly acute, closely approximated to the orbit.

Epigastric crests very low, broad, and blunt; under magnification marked with vermicular depressions. Post-orbital crests distinguishable only as a slight tumescence on either side.

Abdomen of the adult male a broad-based elongate triangle in outline; 5th segment peculiarly narrow, its length being equal to its distal breadth; 6th segment also very narrow, its length considerably exceeding its distal breadth, which slightly exceeds its proximal breadth; 7th segment broadly rounded at apex, much longer than broad. In the adult female the abdomen is broad, but the 7th segment is unusually long and triangular, its length being about three-quarters its basal breadth.

The antennular fossæ are peculiarly narrow; they are never widely open to the orbit, but either they are closed externally by the contact of the front with the epistome, or if they are narrowly open, the opening is closed by the tightly impacted and very obliquely disposed antennal peduncle.

The elements of the antennal peduncle are extremely hard to distinguish, and no antennal flagellum can be detected.

In the mandibular palp all three segments can be made out, and the terminal segment is of the typical *Paratelphusa* type, being bifurcate from the base, so that the two lobes embrace the incisor process of the mandible.

In the external maxillipeds the exopodite is very short and is hairy and pointed and non-flagellate; the ischium has a faint longitudinal groove on its ventral surface; and the merus is quadrangular, with its antero-external angle nearly right, and is a little broader than long.

Chelipeds in both sexes very unequal; carpus and hand smooth to the naked eye; the carpus has its inner angle spiniform, and has some tufts of blackish bristles along its anterior border; in both chelæ the fingers are fairly evenly toothed and are *pointed*, and the dactylus is longer than the palm; in the larger chelæ the fingers meet only at tip.

The legs are slightly longer than the smaller cheliped; they are studded with little tufts of long, very stiff and coarse bristles; the bristles are black with yellow tips, and there are only three or four in each tuft.

In large adults of both sexes the carapace is a little under $\frac{1}{2}$ inch long, a little over $\frac{1}{2}$ inch broad, and a little over $\frac{1}{4}$ inch deep.

This species at first sight resembles *gubernatoris* and *pilosipes* from the same station; but it is at once distinguished by the extremely broad front; by the narrow antennular fossæ, and the tightly impacted and almost rudimentary antennal peduncle; by the very short hairy exopodites of the external maxillipeds; and by the long narrow 5th abdominal segment of the adult male; moreover, the carapace, instead of being flat, is strongly convex. *P. pilosipes* has some tufts of bristles on the legs, but they are not so numerous; and again, in *pilosipes* the fingers have peculiar broad spooned tips.

$\frac{1023}{4}$.	Mahableshwar.	Donor unrecorded.	22 ♂, 5 ♀ (including types).
$\frac{1877}{10}$.	Poona and Mahableshwar.	Bombay Nat. Hist. Soc.	1 ♂, 1 ♀.

Genus III.—Gecarcinucus.

Gecarcinucus, Milne Edwards, in Jacquemont's Voy. dans l'Inde, IV., Crust., p. 44, 1844; Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VIII., 1906, p. 66 (*ubi lit.*).

The difference between *Gecarcinucus* and *Paratelphusa* is so slight, and is so nearly bridged over, that only an innate feeling of reverence for ancient landmarks prevents me from uniting the two.

The carapace is oval and subcylindrical (as it is in some species of *Paratelphusa*).

The cervical groove is very deep and broad, and forms a rather long and narrow loop, the ends of which have a fore-and-aft rather than a lateral trend; but a cervical groove nearly of this kind is found in some species of *Paratelphusa* (e.g., *P. pulvinata*).

The epigastric and post-orbital crests are low and not at all conspicuous; but this sort is not uncommon in *Paratelphusa*.

The antero-lateral borders of the carapace are rather full and tumid, their curve is hardly broken, and there is no distinct lateral epibranchial spine; but there are a few species of *Paratelphusa* of which the same can be said.

The abdomen of the *adult* male is more regularly triangular—that is to say, there is no sudden contraction in width in its terminal half; the 6th segment is long rather than transverse—that is to say, its length is at least equal to its distal breadth; and the 7th segment is elongate, generally tongue-shaped; but there are some species of *Paratelphusa* that have almost the same shape of abdomen.

The oral edge of the epistome is everted on either side of its median lobe, and the front edge of the meropodites of the external maxillipeds is separated from it, so that the channelled plate of the endopodite of the first maxillipeds is

distinctly visible, forming with the edge of the epistome on either side a subtubular exhalant opening when the external maxillipeds are shut. But a condition closely approaching this is to be found in several species of *Paratelphusa*.

The mandibular palp is exactly like that of *Paratelphusa*, and consists of two joints (the normal 1st and 2nd joints being indistinguishably fused), of which the terminal one is split into two lobes—a broader anterior, and a narrower posterior—which embrace the incisor process of the mandible.

The only two points that seem constantly to differentiate *Gecarcinucus* from *Paratelphusa* are the following :—

(1) The front is a long, narrow, greatly deflexed lobe, hardly wider than the orbit in the adult. There are several species of *Paratelphusa* in which, in old individuals, the front becomes relatively narrow, but there is none that I know of in which it is not *much* wider than the orbit;

(2) The dactyli of the crawling legs are decidedly slender.

A third difference that only, so far as I know, holds good for *Gecarcinucus jacquemontii*, is that the abdomen of the adult female is narrow and has a terminal joint the length of which equals, or slightly exceeds, its proximal breadth.

It seems permissible to split the genus into two sections as follows :—

I. Orbits of the usual pattern; a small lateral epibranchial tooth or tubercle . . . . . *Cylindrotelphusa.*

II. Lower outer corner of orbit drawn out as a distinct gutter-like recess; no trace of a lateral epibranchial denticle . . . *Gecarcinucus.*

The genus *Gecarcinucus*, in the wider sense, is found on the south Indian plateau and in New Guinea. The species from New Guinea should, I think, be placed in the subgenus *Cylindrotelphusa*.

Subgenus I.—Gecarcinucus.

Carapace very broad. Orbits hardly visible in a dorsal view, and contorted, their *lower outer* corner being produced into an outlying bay; external orbital angle suppressed.

Edge of antero-lateral borders of carapace smooth or feebly crenulate; no trace of a lateral epibranchial tooth.

Abdomen of *adult female* narrow, the 7th joint being of an elongate triangular form. Seventh segment of abdomen of adult male elongate, tongue-shaped.

Excurrent branchial openings distinctly subtubular between the edge of the external maxillipeds and the epistome when the maxillipeds are shut.

Teeth of the distal part of the chelæ small translucent, in a very close-set regular row.

Of this subgenus there are two species, as is shown in the following table :—

I. Front square-cut, its width little more than the maximum diameter of the orbit, and about one-sixth the greatest breadth of the carapace; finger-cleft and inner surface of palm naked	*G. jacquemontii.*
II. Front with convergent sides, its width exceeds the maximum diameter of the orbit by one-fourth, and is about one-fifth the greatest breadth of the carapace; finger-cleft and neighbourhood of inner surface of palm concealed in a thick, shaggy mat of hair . .	*G. edwardsi.*

1. Gecarcinucus (Gecarcinucus) jacquemontii, Edw. (Fig. 66.)

Gecarcinucus jacquemontii, Milne Edwards in Jacquemont's Voy. dans l'Inde, IV., Crust., p. 4, pl. i., 1844; Mary J. Rathbun, Nouv. Archiv. du Muséum (4), VIII., 1906, p. 67, pl. xix., figs. 1, 2 (*ubi lit.*).

Carapace convex, subcylindrical, its depth considerably over half its length, broadly oval, its length hardly two-thirds its greatest breadth; its surface and side-walls practically smooth to the naked eye.

"Cervical" groove very broad and deep, running in a long, narrow, markedly antero-posterior loop.

Regions of carapace very clearly defined, individually tumid; post-frontal mesogastric groove long; a distinct tumid oval facet in the cardiac corner of either epibranchial region, and between them two smaller, less distinct, præcardiac facets.

Front, in the adult, a long, narrow, square-cut, vertically-deflexed lobe, not or hardly wider than the orbit; broadly bilobed in a dorsal view, and with a somewhat bilobed surface owing to the faint anterior prolongation of the mesogastric groove.

As the anterior part of the carapace is deflexed, very little is seen of the orbits in a dorsal view; they are wide, and have a thick, smooth, lip-like margin, which is broken only by the wide antennal gap; their lower border is so bent as to form a large bight in the orbital cavity at its lower outer corner; the external orbital angle is quite suppressed.

Antero-lateral borders of carapace strongly arched, longer than the postero-lateral, with a tumid margin which, however, in its front part, is defined by a low, thick, obscurely-crenulate edge. There is no trace of an epibranchial tooth, the sweep of the antero-lateral margin being hardly broken where the cervical groove meets it.

Epigastric crests low, blunt, obscure, continuous on either side of the mesogastric groove with the still blunter and more obscure post-orbital crests; the latter are approximated to the orbit and follow its curve, but can seldom be traced beyond the cervical groove.

Abdomen of adult male fairly regularly and narrowly triangular; in the 6th segment the sides converge, and the length exceeds the distal breadth; the 7th segment is tongue-shaped, and its maximum breadth is not two-thirds its

length. Abdomen of adult female comparatively narrow, *the length of the 7th segment being equal to its proximal breadth.*

Antennal flagellum short.

The edge of the epistome is deeply trilobed (as is common in *Potamonidæ*), but the outer lobes are everted so that the excurrent branchial opening is subtubular.

Mandibular palps as described in the diagnosis of the genus.

The exopodites of all the maxillipeds have a strong, plumose flagellum. In the external maxillipeds the exopodite is longer than the ischium, the ischium is longitudinally grooved, and the merus is subquadrangular and broader than long; these appendages do not shut close against the epistome, so that the channelled plate of the endopodite of the 1st maxillipeds is more exposed than it is in most other *Potamonidæ*.

Chelipeds markedly unequal in both sexes, but most so in the adult male. All three borders of the merus, the inner border of the carpus, and the upper and lower borders of the palm are usually crenate or crenulate. The surface of the merus is faintly rugulose; that of the carpus is nearly smooth to the naked eye, except for pitting; that of the hand and fingers is coarsely pitted. Inner angle of carpus spiniform. In the smaller cheliped the dactylus is much longer than the palm; the fingers are broad, and gape little, or not at all, at base; the teeth of the proximal half are laciniate, but none of them is much enlarged, and the teeth of the distal half are small, translucent, incisor-like, and very close-set and regular. In the larger cheliped also the dactylus is much longer than the palm; the fingers are compressed, and are very broad and strong, and gape at base when closed; the teeth of the proximal half are laciniate and about two of them are very much enlarged, and the teeth of the distal half are small, translucent, incisor-like, and are very close and regularly set in a straight row.

Legs stout, about as long as the smaller cheliped; dactyli slender, and a good deal longer than the propodites; longer propodites hardly twice as long as broad.

In a large male the carapace is $1\frac{5}{16}$ inch long, 2 inches broad, and $\frac{7}{8}$ths inch deep.

$\frac{6431}{3}$.	Khandalla.	F. Stoliczka.	1 ♂, 3 ♀.
$\frac{6434}{3}$.	Khandalla.	W. T. Blanford.	1
$\frac{5484}{10}$.	Khandalla.	J. Wood-Mason.	1 ♂, 3 ♀.
$\frac{5503}{10}$.	Lanauli.	F. Stoliczka.	1 ♂, 2 ♀.

2. Gecarcinucus (Gecarcinucus) edwardsi, Wood-Mason (name only). (Fig. 35.)

This species is represented by a single male, not full grown; compared with a male of *G. jacquemontii* of its own size, it shows the differences specified below. One marked difference, emphasising the concordance between the idea "Gecarcinucus" and the idea "Paratelphusa," occurs in the shape and proportions of the front, which are almost intermediate between the two "genera."

The difference from *G. jacquemontii* is as follows:—

Though the carapace is hardly less convex and subcylindrical, its individual regions are not so tumid and lobe-like; this is partly because the "cervical groove," though otherwise similar, is not so deeply impressed.

The length of the carapace is nearer three-fourths than two-thirds its greatest breadth.

Short oblique ridges, very plain to the naked eye, stud the side-walls of the carapace and pass across its lateral borders in places.

The front is broader—the maximum diameter of the orbit being a bare three-quarters of the width of the front—and its sides, instead of being parallel, are oblique.

The bay at the lower outer corner of the orbit is longer.

The post-orbital crests distinctly follow the upper border of the orbit, in close proximity to it, almost to the edge of the carapace.

In the male abdomen, though it is otherwise similar, the length of the 6th segment is only equal to its distal breadth.

In the chelipeds the surface of the merus and carpus is more rudely rugulose, and the surface of the carpus and hand is more thickly pitted.

In the chelæ the straight, close-set rows of small, and very uniform and regular, translucent teeth exist near the tips of the fingers as in *G. jacquemontii*, but in the basal half of the fingers the place of teeth is taken by a thick mat of hair, which also fills the finger-cleft and extends over a considerable area of the inner surface of the palm.

In the unique male the carapace is $\frac{15}{16}$ths inch long, $1\frac{5}{16}$ inch broad, and nearly $\frac{8}{16}$ths inch deep.

$\frac{6942}{3}$. Khandalla. F. Stoliczka. 1 ♂ (type).

Subgenus II.—Cylindrotelphusa.

Type: *Cylindrotelphusa steniops.*

The species separated as the type of this subgenus connects *Paratelphusa* and *Gecarcinucus;* and strengthens the view that *Gecarcinucus* itself is merely

a "subgenus" of *Paratelphusa*, or rather, having regard to the law of priority, that *Paratelphusa* is one of the subgenera of *Gecarcinucus*.

However, accepting *Gecarcinucus* as a genus of equal weight with *Paratelphusa*, then the species here under consideration—the type of the genus *Cylindrotelphusa*—must be attached to *Gecarcinucus* rather than to *Paratelphusa*, on account of its long, narrow, much-deflexed front, the width of which only slightly exceeds that of the orbit. There are certain Indian species of *Paratelphusa* in the very old males of which the breadth of the front falls well below a fourth the greatest breadth of the carapace, but even in these abnormal specimens the front is very much wider than the orbit.

In *Cylindrotelphusa*, as in *Gecarcinucus*, the epigastric and post-orbital crests are low and not at all conspicuous, the post-orbital crests being approximated to the upper border of the orbit and following its curve; the carapace is convex and subcylindrical; the cervical groove is very deep and broad, and forms a long comparatively narrow loop, the trend of which is markedly antero-posterior with a minimum of lateral deflection; the free edge of the epistome is everted—but not to such a marked extent—and the exhalant branchial orifice is subtubular—though the channelled plate of the endopodite of the 1st maxillipeds is, perhaps, not quite so much seen; and the mandibular palp is identical.

The differences that mark the subgenus *Cylindrotelphusa* are the following:—

(1) The antero-lateral borders of the carapace, though thick and full, are crenate, and one of the crenations is a lateral epibranchial denticle;

(2) The orbits, though not well seen in a dorsal view, are of the usual *Paratelphusa* shape, and the external orbital angle is quite apparent;

(3) The abdomen of the adult female is broad, and ends broadly, as is usual among *Potamonidæ*.

Another difference, to which little importance need be attached, is that the carapace is not so broad; hence the breadth of the front relative to that of the carapace is greater than in typical *Gecarcinucus;* but the breadth of the front relative to that of the orbit is not different.

3. Gecarcinucus (Cylindrotelphusa) steniops, Wood-Mason. (Fig. 36.)

Telphusa steniops and *microps*, Wood-Mason (names only).

Carapace strongly convex, subcylindrical; its length varies very considerably—from about three-fourths to nearly four-fifths its greatest breadth; its depth also varies a good deal—from a little more than half to nearly two-thirds its length; its surface is broken near the lateral borders by some short, fine, oblique ridges, which may (rarely) spread some way on to the epibranchial regions; the frontal region, again, may be rugulose; otherwise the surface is smooth.

The cervical groove, as in *Gecarcinucus*, makes a comparatively long and narrow loop; the groove is deep-cut and broad, except in the transverse part which bounds the mesogastric area posteriorly—this part is finer and more superficial; as in *Gecarcinucus*, the main trend of the groove is rather anterior, in the direction of the orbital angle than of the lateral border of the carapace.

The regions are distinct and individually tumid; in the gastric region there is the usual post-frontal groove, which bifurcates narrowly behind and is prolonged anteriorly almost to the edge of the front; in the gastro-cardiac angle of each epibranchial region an oval areola is more or less distinctly marked off, and between these the two small prækardiac facets are just indicated.

Front, like that of *Gecarcinucus*, a long, narrow, square-cut, strongly-deflexed lobe, very little wider than the orbit; its edge is smooth and is broadly, but sometimes obscurely, bilobed.

Orbits wide in their vertical diameter, their outer angle small, but dentiform and subacute, and not separated from the lower border by any gap.

Antero-lateral borders of carapace rather "full," longer than the postero-lateral, well arched, rather irregularly crenate; one of the crenations, not specially distinguished in size and not much distant from the orbit, is the lateral epibranchial denticle.

Epigastric crests broad and low, distinct but far from prominent, usually appearing rather as small, smooth, or roughened lumps than as crests; lying in line with the post-orbital crests. The latter are low, blunt, and indistinct in their inner half, and are sharper—but usually crenulate or broken in their outer half.

In the adult male abdomen the length of the 6th segment equals or slightly exceeds its distal breadth, the sides of the segment being convergent and slightly convex; the 7th segment, which is a good deal longer than broad, is contracted and broadly-rounded distally from a broadish base.

The antennal peduncles loosely fill the broad orbital gap; the flagellum is short.

The edge of the epistome is deeply festooned and slightly everted, so that, as in *Gecarcinucus*, the efferent branchial openings are subtubular.

The mandibular palp, as in *Paratelphusa* and *Gecarcinucus*, is two-jointed (the first two joints being indistinguishably fused), and has the terminal joint bifurcate from the base, the two lobes embracing the edge of the incisor process of the mandible.

The exopodites of all the maxillipeds have a strong flagellum. In the external maxillipeds the exopodite is longer than the ischium, the ischium is grooved, and the merus is subquadrangular and hardly broader than long.

The chelipeds in both sexes are unequal; the merus has a squamiform sculpture; so has the carpus, but here usually it is more indistinct, and is

sometimes almost effaced; so has the hand, but here it often is even more inclined to be effaced; the inner angle of the carpus is spiniform; the fingers are pointed, moderately stout, and as long as, or a little longer than, the palm; though the teeth are not quite regular, none of them is enlarged to any striking extent; in the larger cheliped the palm is nearly as high as long, and the fingers when closed gape a little at base.

Legs moderately stout, the 2nd (longest) pair are about as long as the chelipeds; the dactyli are particularly long and slender, considerably exceeding their propodites; the longer propodites are about twice as long as broad.

This very well-marked species is rather variable in the breadth, and to a less extent in the convexity, of its carapace. At first I separated, without hesitation, two varieties; but after an attentive examination of every specimen, I found that these supposed varieties could not be supported. Wood-Mason, who had seen only three specimens, had named one of them with a narrower carapace *Telphusa microps*.

The following table shows the variation in the dimensions of the carapace, expressed in sixteenths of an inch.

	Length.	Breadth.	Depth.
Average adult male . .	16	20	9
Very large adult male . .	19	25	12
Average adult female . .	17	22	10
Very large adult female .	20	25	12
Gigantic female . . .	24	30	13

$\frac{6959}{3}$.	Travancore.	F. Beddome.	1 ♀.
$\frac{1752}{10}$, $\frac{1768}{10}$.	S. India.	Travancore Museum.	2 ♂, 1 ♀.
$\frac{3278\text{-}80}{10}$.	Trivandrum.	Travancore Museum.	2 ♂.
$\frac{5734}{10}$, $\frac{5736}{10}$.	Madathoray, Travancore.	N. Annandale.	1 ♂, 1 ♀.
$\frac{5741}{10}$.	Shastancottah, near Quilon.	N. Annandale.	9 ♂, 8 ♀ (including types).

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BRACHYURA

FASCICULUS II. POTAMONIDÆ

EXPLANATION OF PLATES

EXPLANATION OF PLATES

PLATE I.

FIG. 1, 1*a*—*Potamon fluviatile* var. *gedrosianum*, ♂, nat. size.
FIG. 2, 2*a*, 2*b*—*Potamon atkinsonianum* var. *emphyseteum*, ♂, nat. size.
FIG. 3, 3*a*—*Potamon bifarium*, ♂, nat. size.
FIG. 4, 4*a*, 4*b*—*Potamon hispidum*, ♂, nat. size.

PLATE II.

FIG. 5, 5*a*, 5*b*—*Potamon turgidulum*, ♂, × 2.
FIG. 6, 6*a*, 6*b*—*Potamon tumidulum*, ♂, × 2.
FIG. 7, 7*a*—*Potamon simulum*, ♀, nat. size.

PLATE III.

FIG. 8, 8*a*—*Potamon pruinosum*, ♂, × 1½.
FIG. 9, 9*a*—*Potamon turgidulimanus*, ♂, × 2.
FIG. 10, 10*a*, 10*b*—*Potamon* (*Potamiscus*) *annandalii*, ♂, nat. size.
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PLATE IV.

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FIG. 13, 13*a*, 13*b*, 13*c*—*Potamon* (*Acanthotelphusa*) *crenuliferum*, ♂, nat. size.
FIG. 14, 14*a*—*Potamon* (*Acanthotelphusa*) *calvum*, ♂, nat. size.
FIG. 15—*Paratelphusa trilobata*, ♀, × 1½.
FIG. 16, 16*a*, 16*b*—*Paratelphusa blanfordi*, ♂, nat. size.

PLATE V.

FIG. 17, 17*a*, 17*b*—*Paratelphusa grayi*, ♂, × 2.
FIG. 18—*Paratelphusa* (*Barytelphusa*) *lamellifrons*, ♀, nat. size.
FIG. 19, 19*a*, 19*b*—*Paratelphusa* (*Barytelphusa*) *edentula*, ♂, nat. size.
FIG. 20, 20*a*, 20*b*—*Paratelphusa* (*Barytelphusa*) *nupœa*, ♂, nat. size.
FIG. 21, 21*a*, 21*b*—*Paratelphusa* (*Barytelphusa*) *pulvinata*, ♂, nat. size.

PLATE VI.

FIG. 22, 22*a*, 22*b*—*Paratelphusa* (*Barytelphusa*) *pollicaris*, ♂, nat. size.
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PLATE VII.

FIG. 24, 24*a*—*Paratelphusa* (*Barytelphusa*) *falcidigitis*, ♂, nat. size.
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PLATE VIII.

FIG. 27, 27*a*—*Paratelphusa* (*Phricotelphusa*) *campestris*, ♂, × 1½.
FIG. 29, 29*a*—*Paratelphusa* (*Liotelphusa*) *austrina*, ♂, × 2.
FIG. 30, 30*a*—*Paratelphusa* (*Globitelphusa*) *bakeri*, ♂, × 2.
FIG. 31, 31*a*, 31*b*—*Paratelphusa* (*Globitelphusa*) *pistorica*, ♂, × 2.
FIG. 32, 32*a*, 32*b*—*Paratelphusa* (*Globitelphusa*) *gubernatoris*, ♂, × 2.

PLATE IX.

FIG. 33, 33*a*, 33*b*—*Paratelphusa* (*Globitelphusa*) *pilosipes*, ♂, × 2.
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FIG. 36, 36*a*, 36*b*, 36*c*—*Gecarcinucus* (*Cylindrotelphusa*) *steniops*, ♂, × 1½.

PLATE X.

FIG. 37—*Potamon fluviatile* var. *ibericum*, ♂, nat. size.
FIG. 38—*Potamon koolooense*, ♂, nat. size.
FIG. 39—*Potamon atkinsonianum*, ♂, nat. size.
FIG. 40—*Potamon andersonianum*, ♂, nat. size.
FIG. 42—*Potamon edwardsi* var. *hirtum*, ♂, nat. size.
FIG. 44—*Potamon pealianum*, ♂, nat. size.
FIG. 45—*Potamon tumidum*, ♂, nat. size.

PLATE XI.

FIG. 46—*Potamon manii*, ♂, nat. size.
FIG. 47—*Potamon thagatense*, ♂, nat. size.
FIG. 48—*Potamon* (*Potamiscus*) *sikkimense*, ♂, nat. size.
FIG. 49—*Potamon* (*Acanthotelphusa*) *dayanum*, ♂, nat. size.
FIG. 50—*Potamon* (*Acanthotelphusa*) *wood-masoni*, ♀, nat. size.
FIG. 51—*Potamon* (*Acanthotelphusa*) *feæ*, ♂, nat. size.
FIG. 52—*Potamon* (*Acanthotelphusa*) *martensi*, ♂, nat. size.
FIG. 53—*Paratelphusa spinigera*, ♂, nat. size.

PLATE XII.

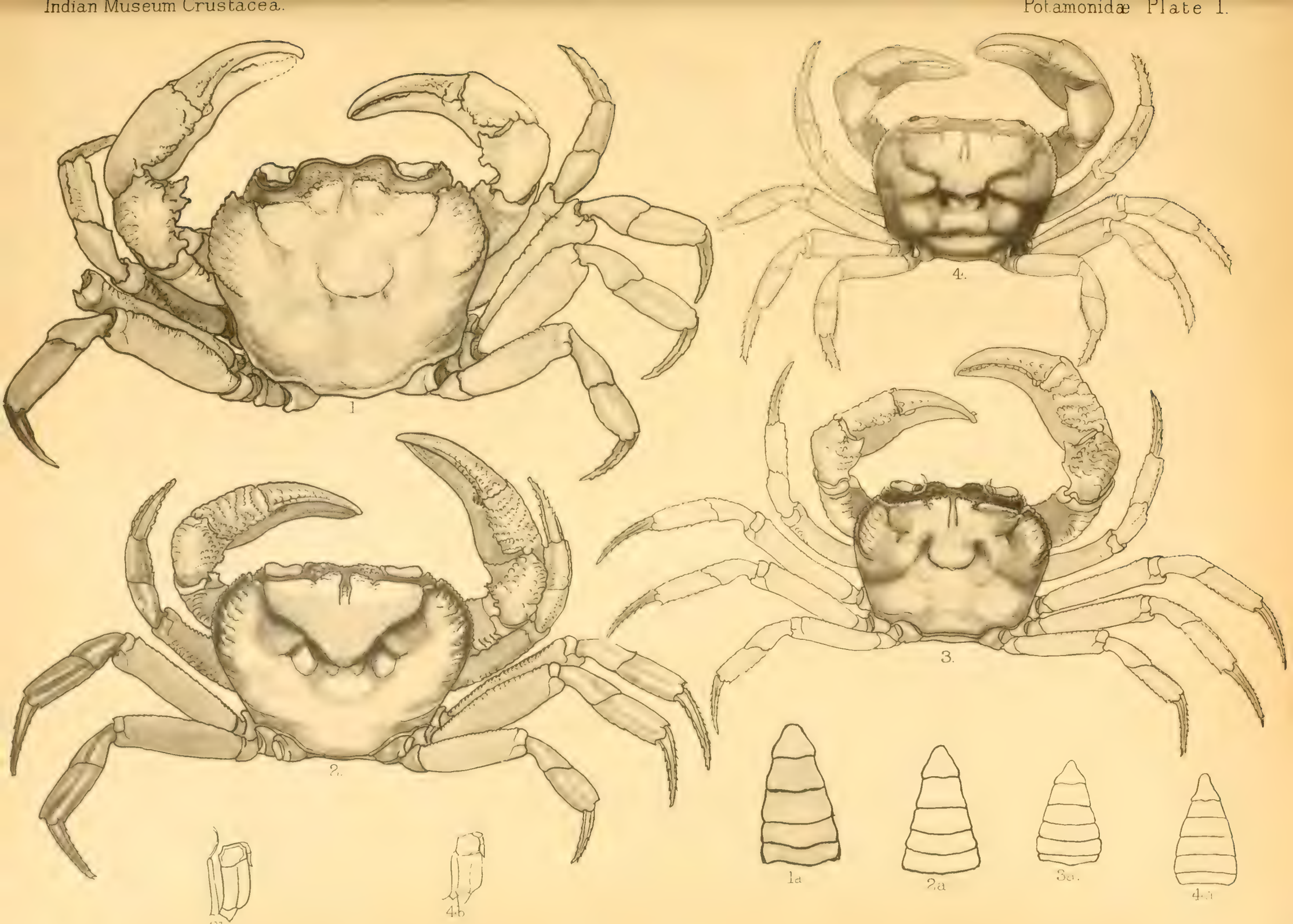
FIG. 54—*Paratelphusa sinensis*, ♂, nat. size.
FIG. 55—*Paratelphusa* (*Barytelphusa*) *jacquemontii* ("*Telphusa indica*"), ♂, nat. size.
FIG. 56—*Paratelphusa* (*Barytelphusa*) *cunicularis*, ♂, nat. size.
FIG. 57—*Paratelphusa* (*Barytelphusa*) *guerini*, ♂, nat. size.
FIG. 58—*Paratelphusa* (*Barytelphusa*) *lugubris*, ♂, nat. size.
FIG. 59—*Paratelphusa* (*Barytelphusa*) *masoniana*, ♂, nat. size.

PLATE XIII.

FIG. 60—*Paratelphusa* (*Oziotelphusa*) *hydrodromus*, ♂, nat. size.
FIG. 61—*Paratelphusa* (*Oziotelphusa*) *bouvieri*, ♂, nat. size.
FIG. 62—*Paratelphusa* (*Phricotelphusa*) *callianira*, ♂, × 2.
FIG. 63—*Paratelphusa* (*Phricotelphusa*) *elegans*, ♂, × 2.
FIG. 64—*Paratelphusa* (*Phricotelphusa*) *carinifera*, ♂, × 2.
FIG. 65—*Paratelphusa* (*Liotelphusa*) *laevis*, ♂, nat. size.
FIG. 66, 66*a*, 66*b*—*Gecarcinucus jacquemontii*, ♂, nat. size.

PLATE XIV.

FIG. 28—*Paratelphusa* (*Liotelphusa*) *lævis* var. *quadrata*, × 2.
FIG. 43—*Potamon edwardsi*, nat. size.
FIG. 67—*Potamon andersonianum* var. *asperatum*, nat. size.
FIG. 68—*Potamon andersonianum* var. *manipurense*, nat. size.
FIG. 69—*Potamon andersonianum* var. *tritum*, nat. size.
FIG. 70—*Potamon pealianum* var. *antennarium*, enlarged.
FIG. 71—*Paratelphusa* (*Barytelphusa*) *guerini* var. *planata*, enlarged.
FIG. 72—*Paratelphusa* (*Barytelphusa*) *guerini* var. *pocockiana*, nat. size.



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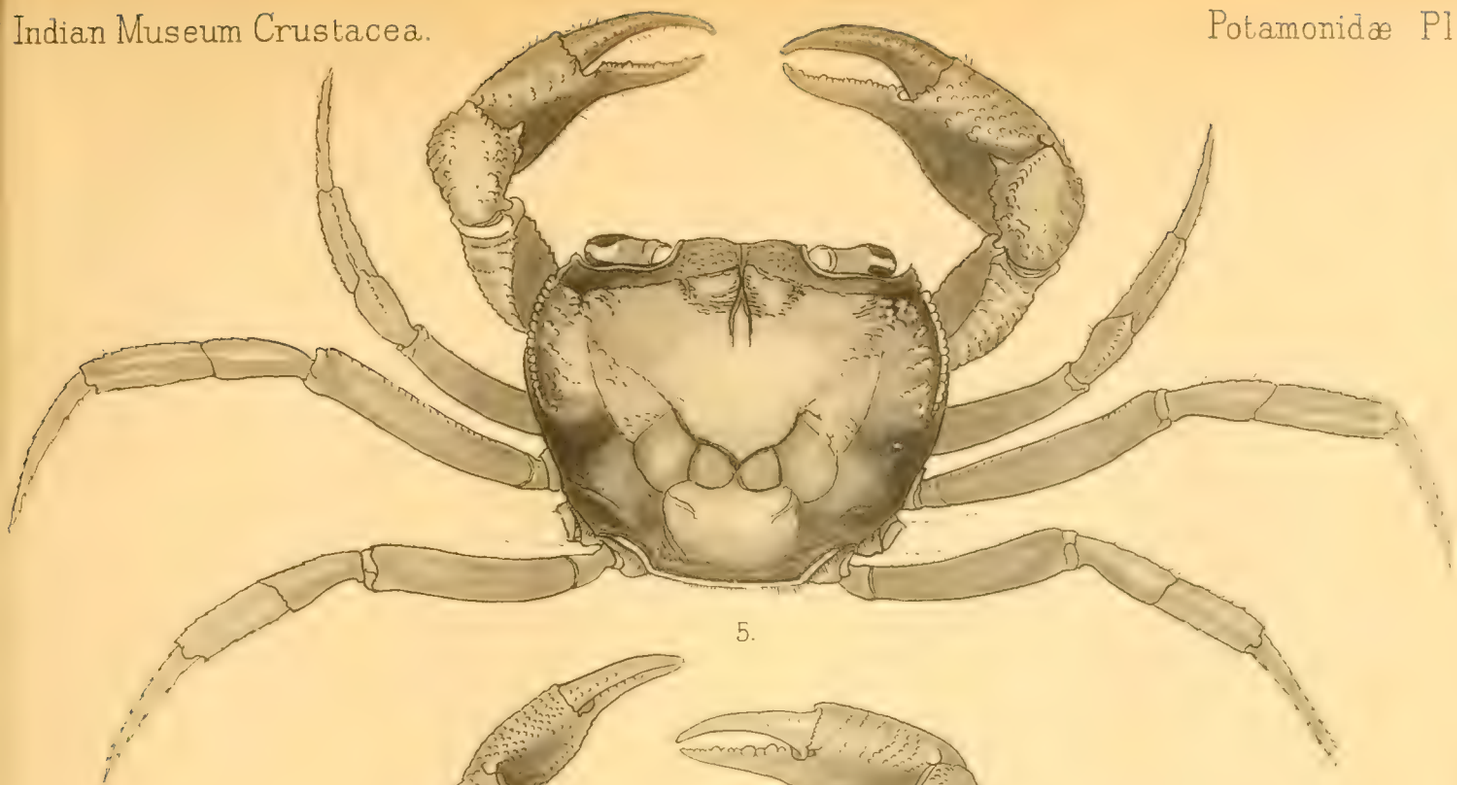

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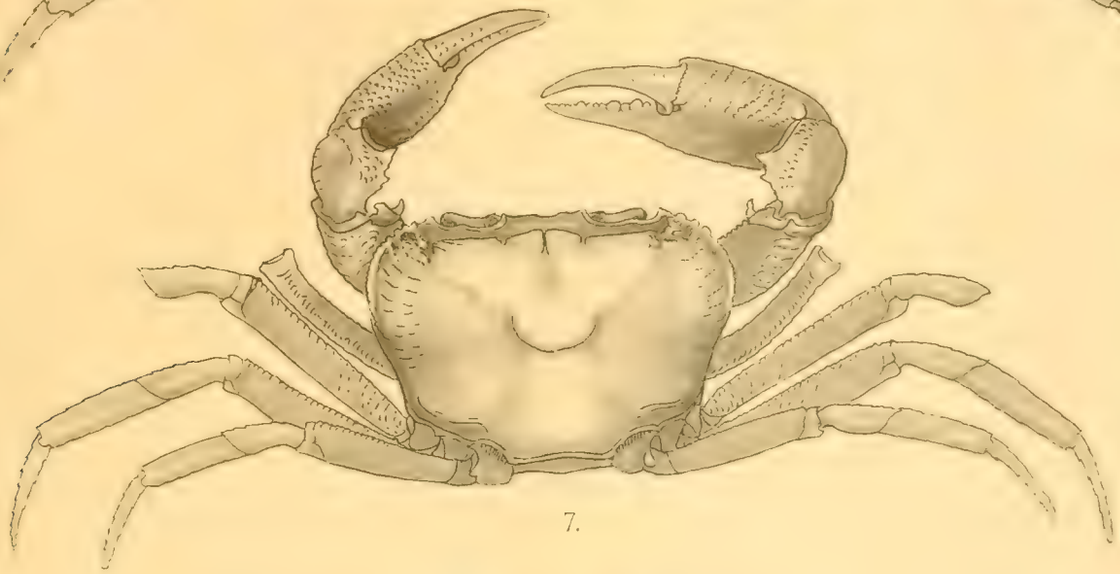
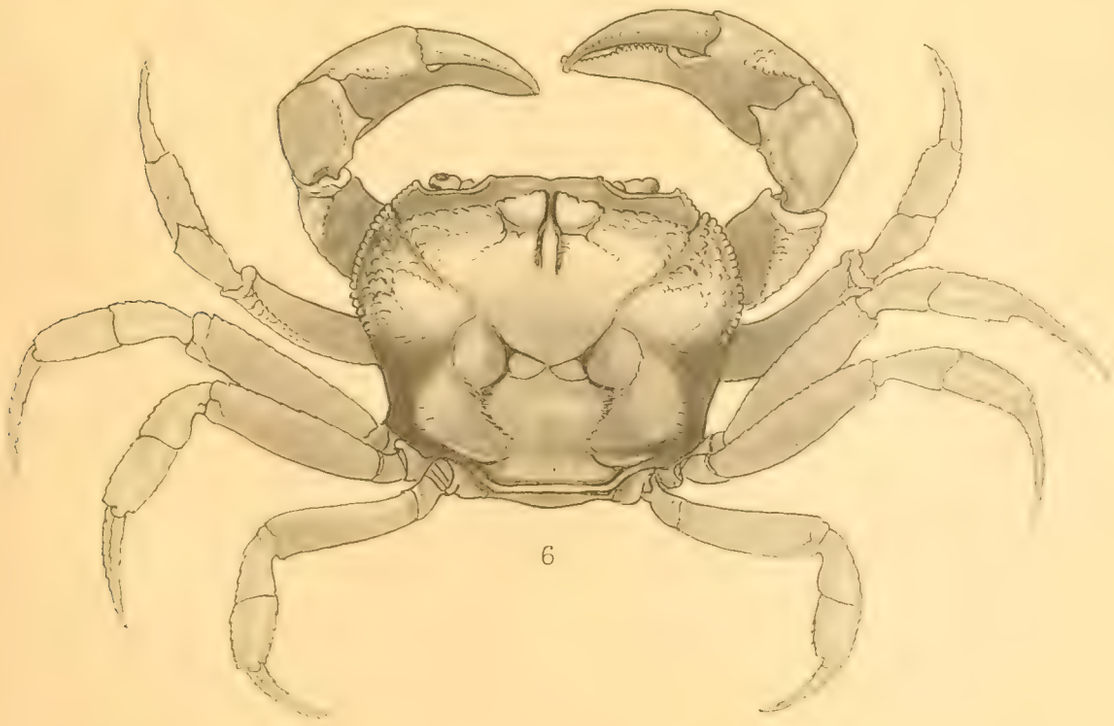
5b.



7.

5a.

7a.



6

6a.

6b.

5. Potamon turgidulum. 6. Potamon tumidulum. 7. Potamon simulum.

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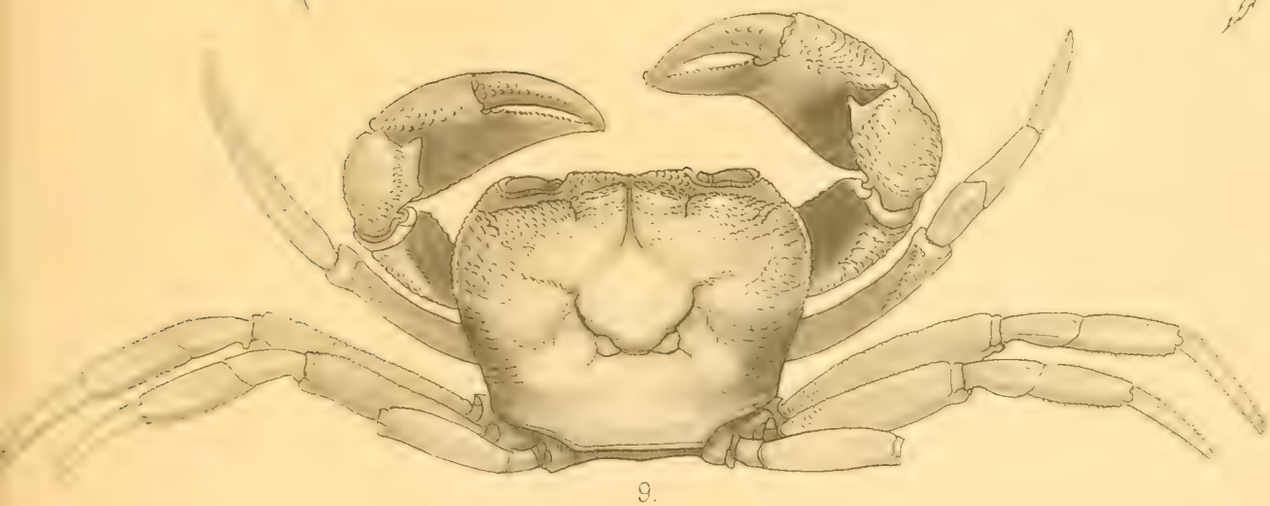
8.

8a.

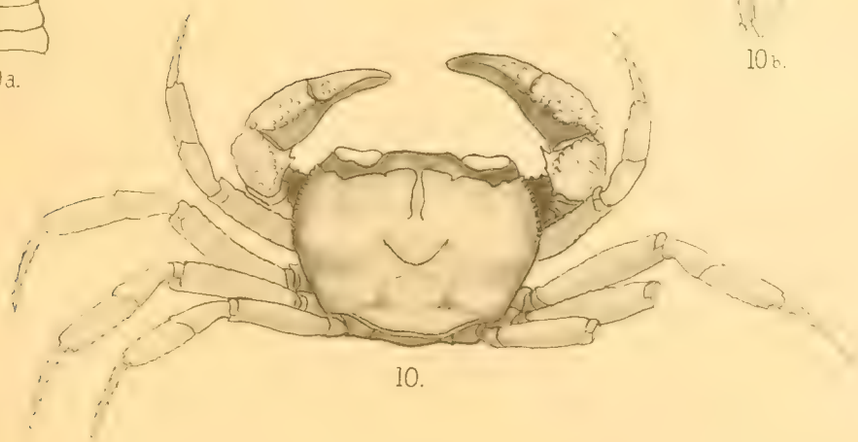


9.

9a.

10a.

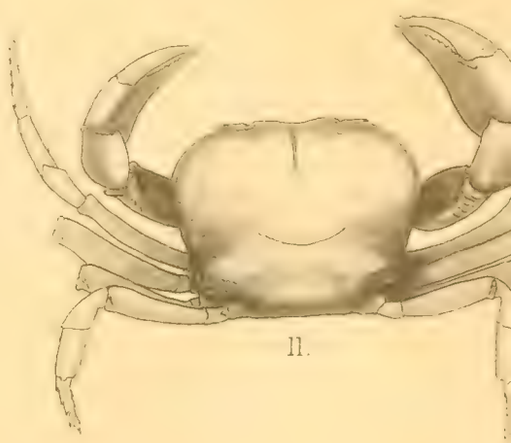
10b.



10.

11a.

11b.



11.

8. Potamon pruinosum. 9. Potamon turgidulimanus. 10. Potamon (Potamiscus) annandalei.

11. Potamon (Geotelphusa) adiatretum.

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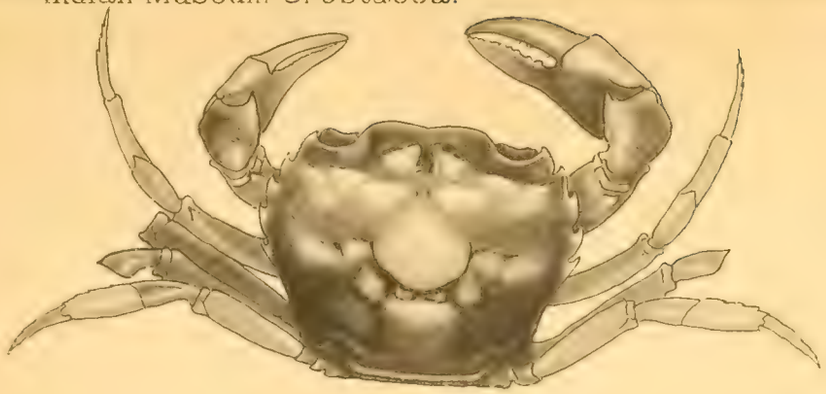
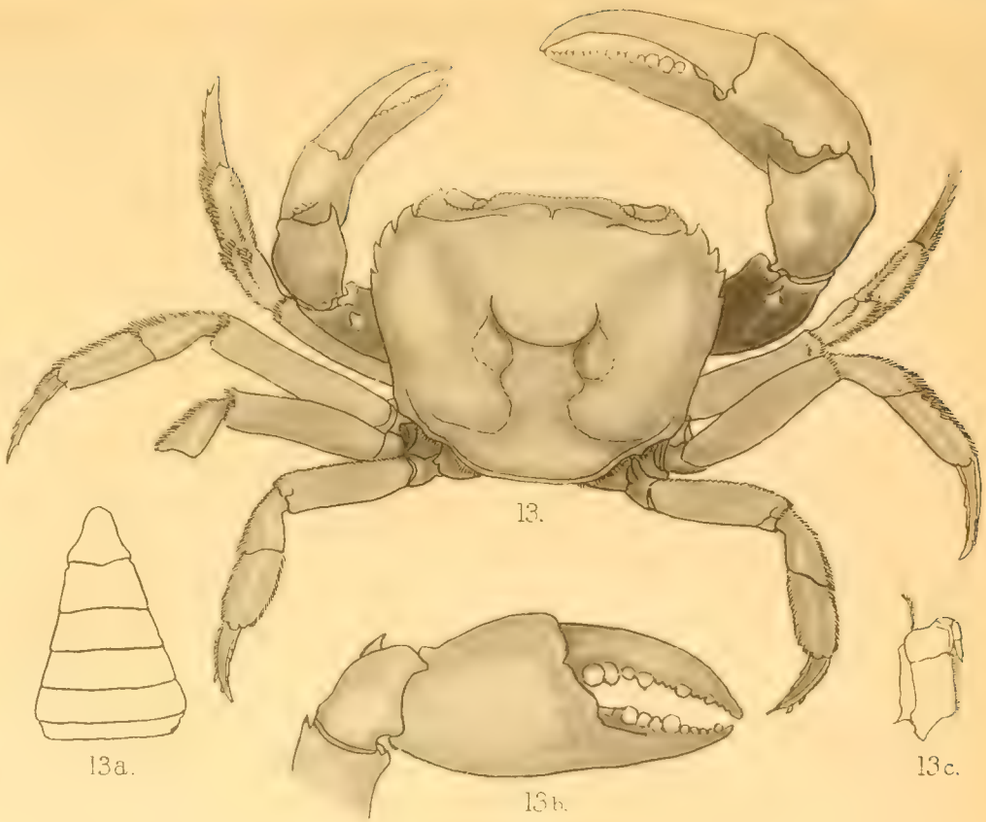


12.

12a.



13.

13a.

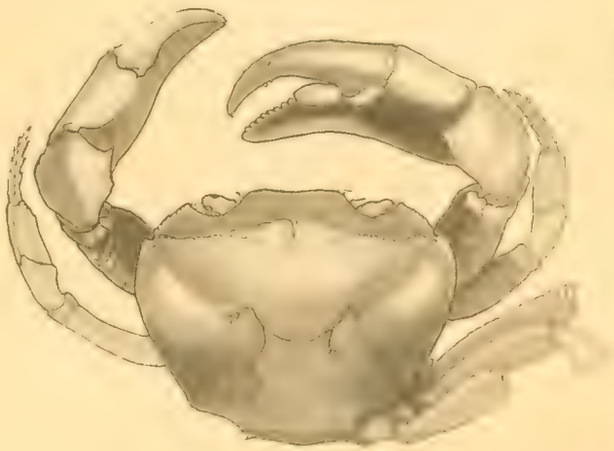
13b.

13c.

14.

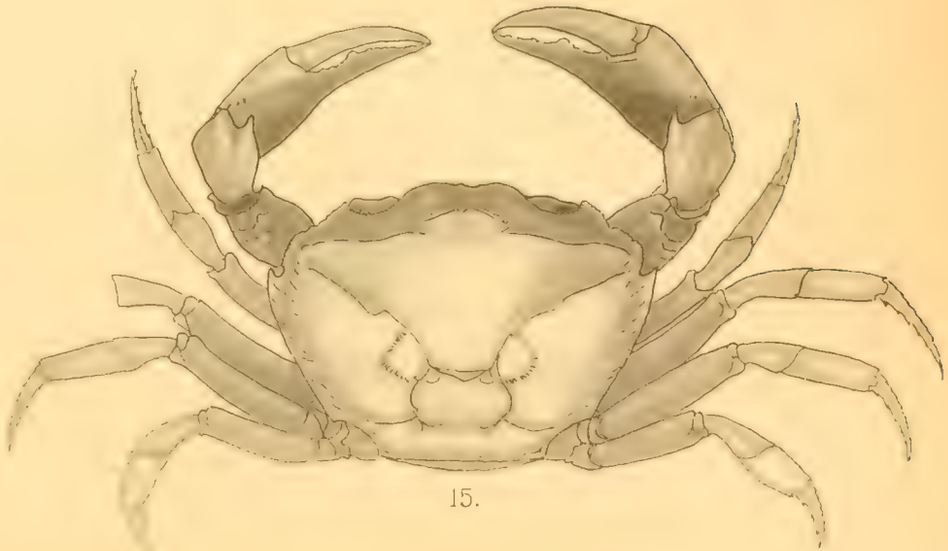
14a.

16b.



16.

16a.



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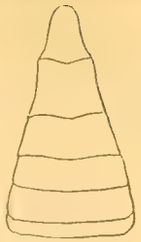
12. Potamon (Acanthotelphusa) fungosum. 13. Potamon (Acanthotelphusa) crenuliferum.

17.



20a.

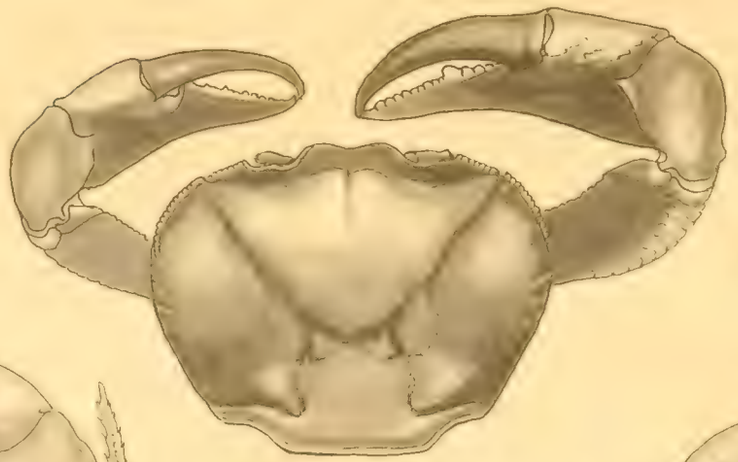
20b.

20.

17a.

17b.

19b.



19.

19a.

21b.

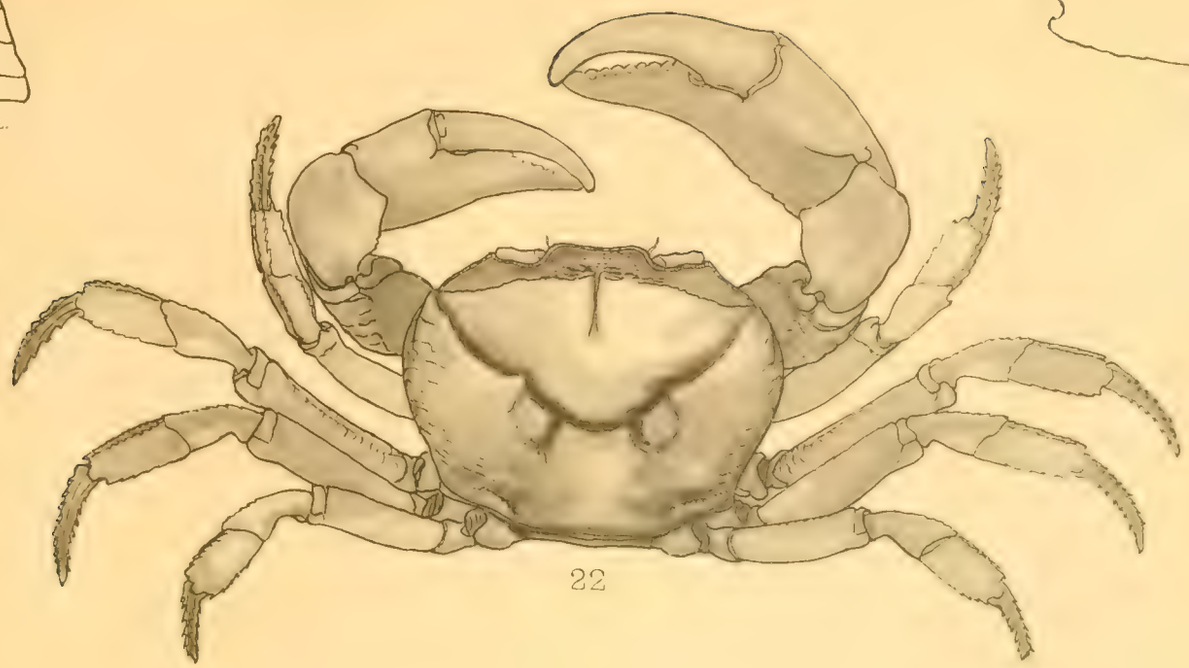
21a.

18.

21.

22a.

22b



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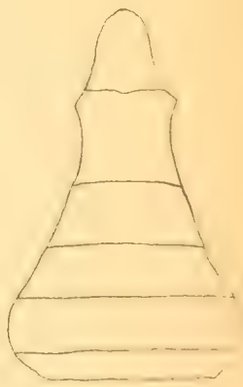
23b.



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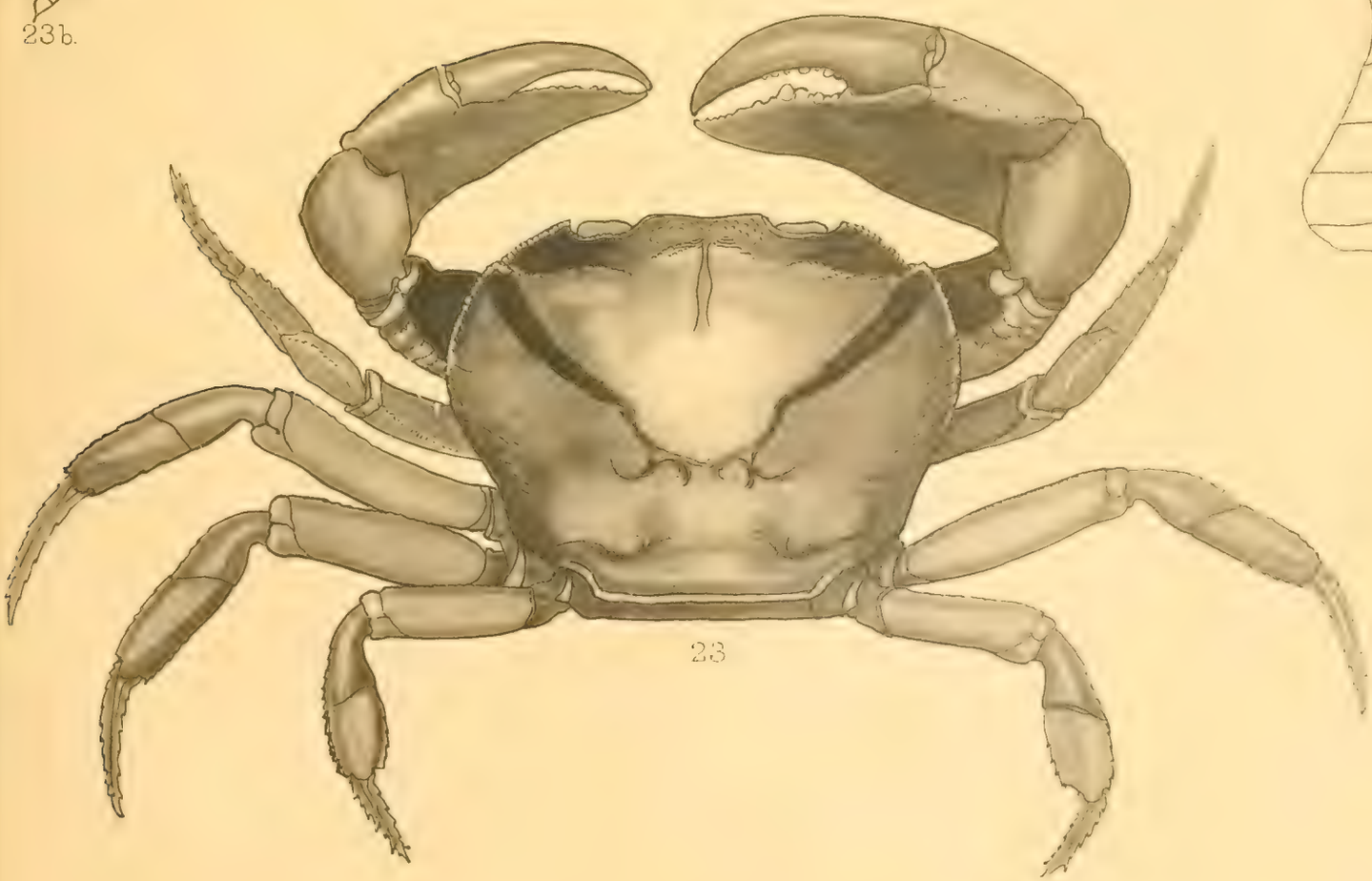
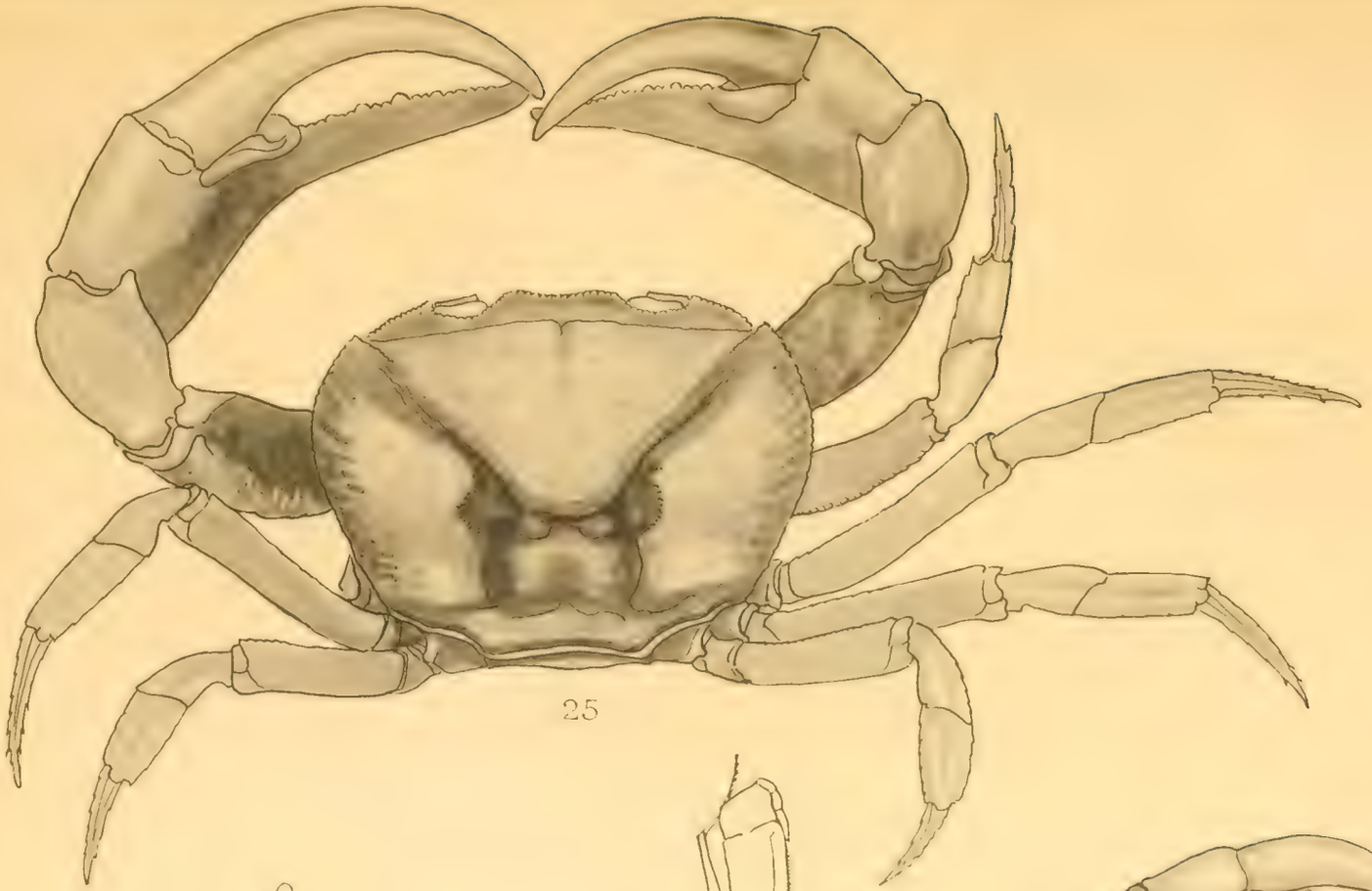


23

22. Paratelphusa (Barytelphusa) pollicaris. 23. Paratelphusa (Barytelphusa) lugubris var. plauta.



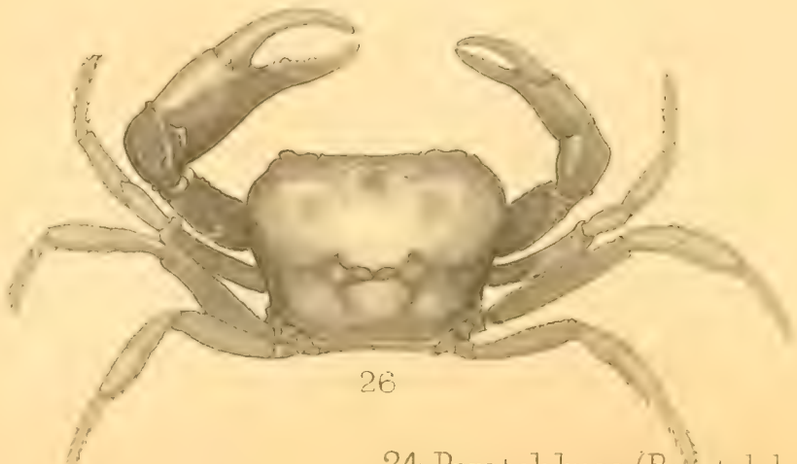
25

25a.

25b

24a

26a



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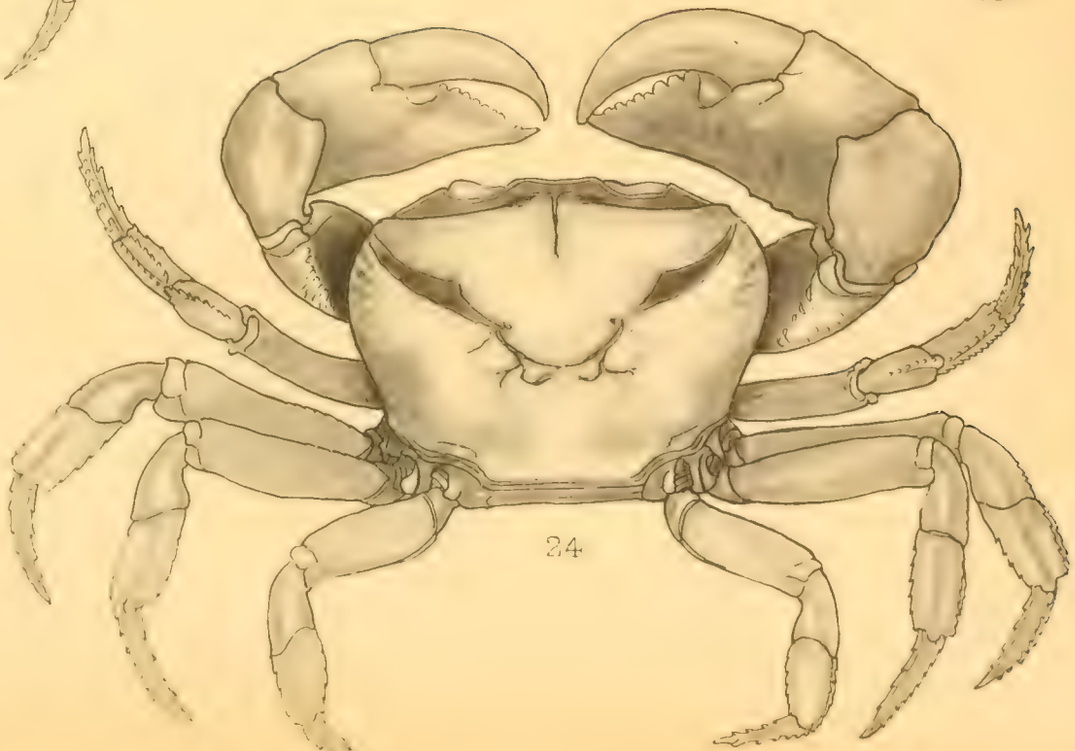


24

24 Paratelphusa (Barytelphusa) [illegible]

25 Paratelphusa (Barytelphusa) [illegible]

27a

27.

32

31a.

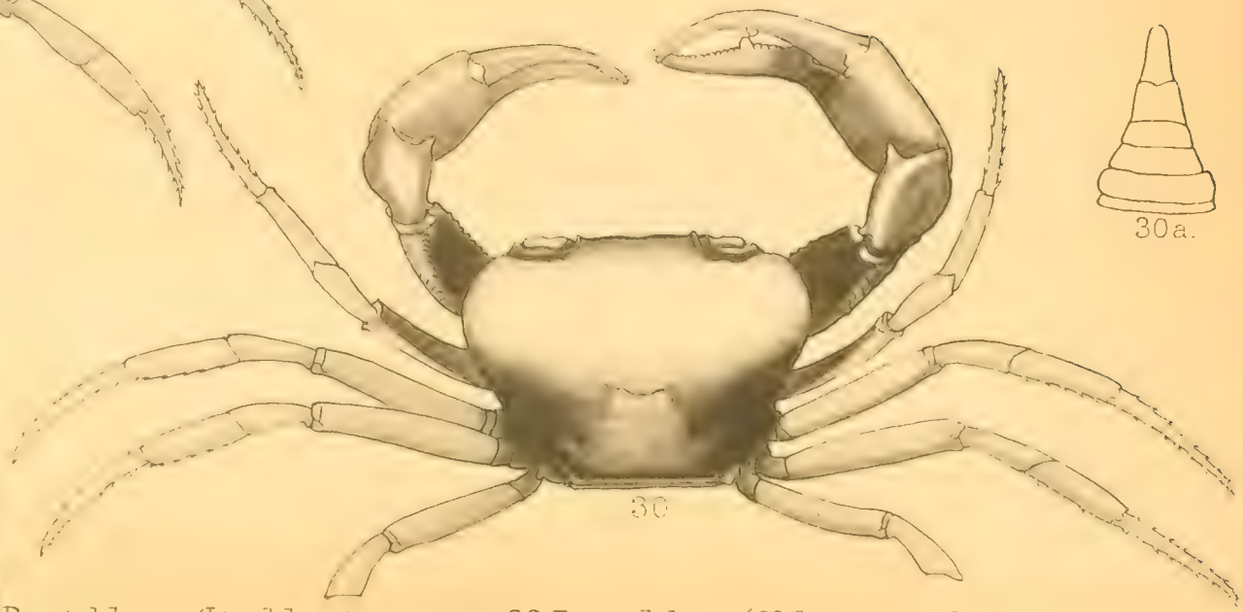
31b

32a

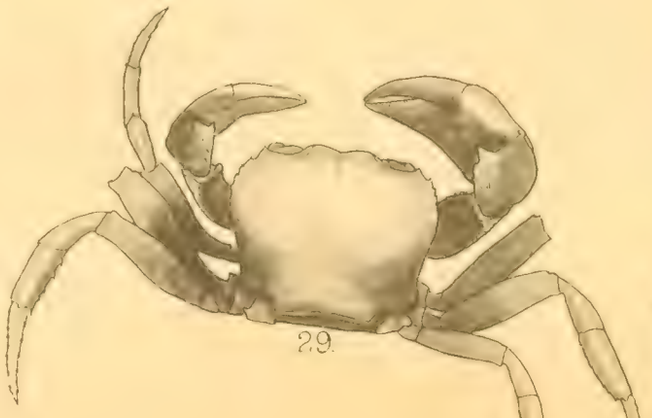
32b.

31

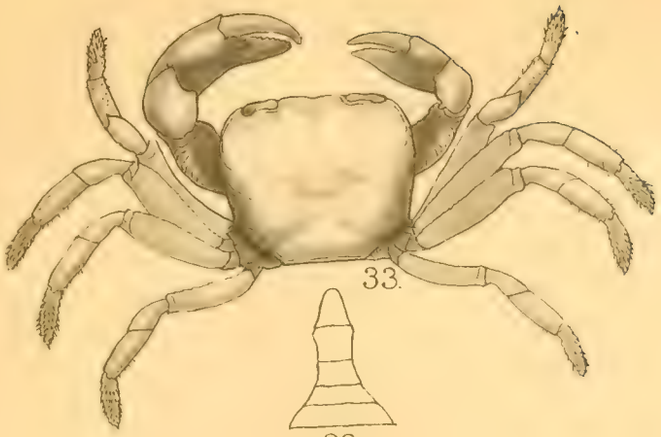
30a.


30

29a


29.

27. Paratelphusa (Phricotelphusa) campestris. 29. Paratelphusa (Liotelphusa) austrina. 30 Paratelphusa (Globitelphusa) bakeri.

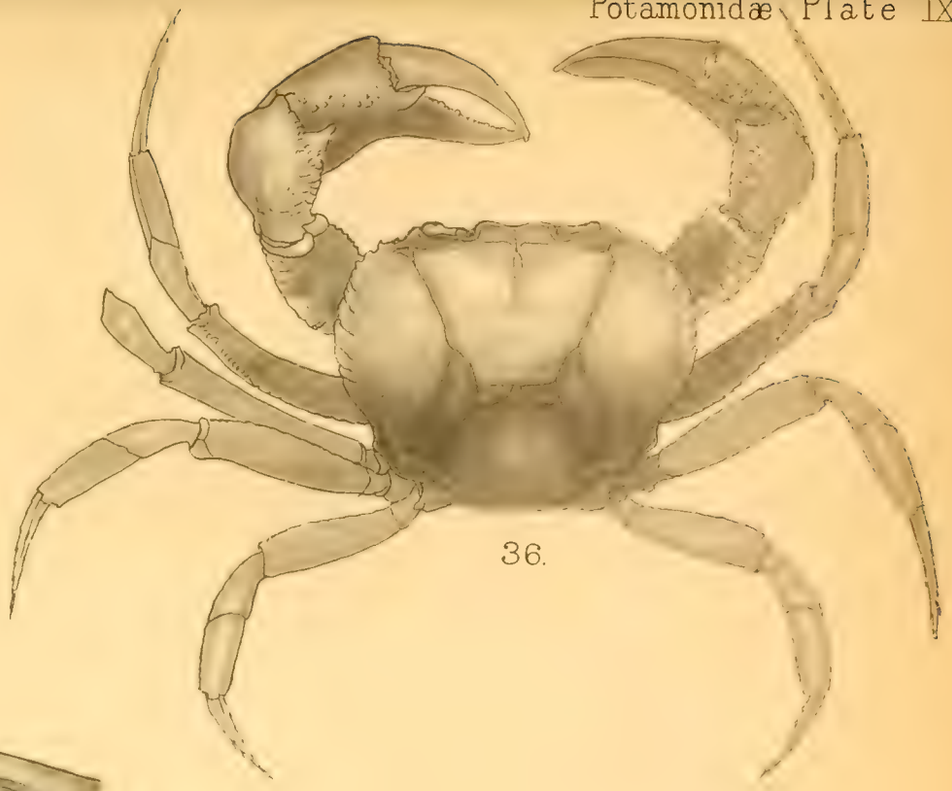


33.

33a.

36b.

36a.



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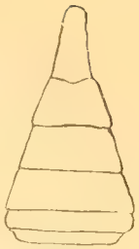
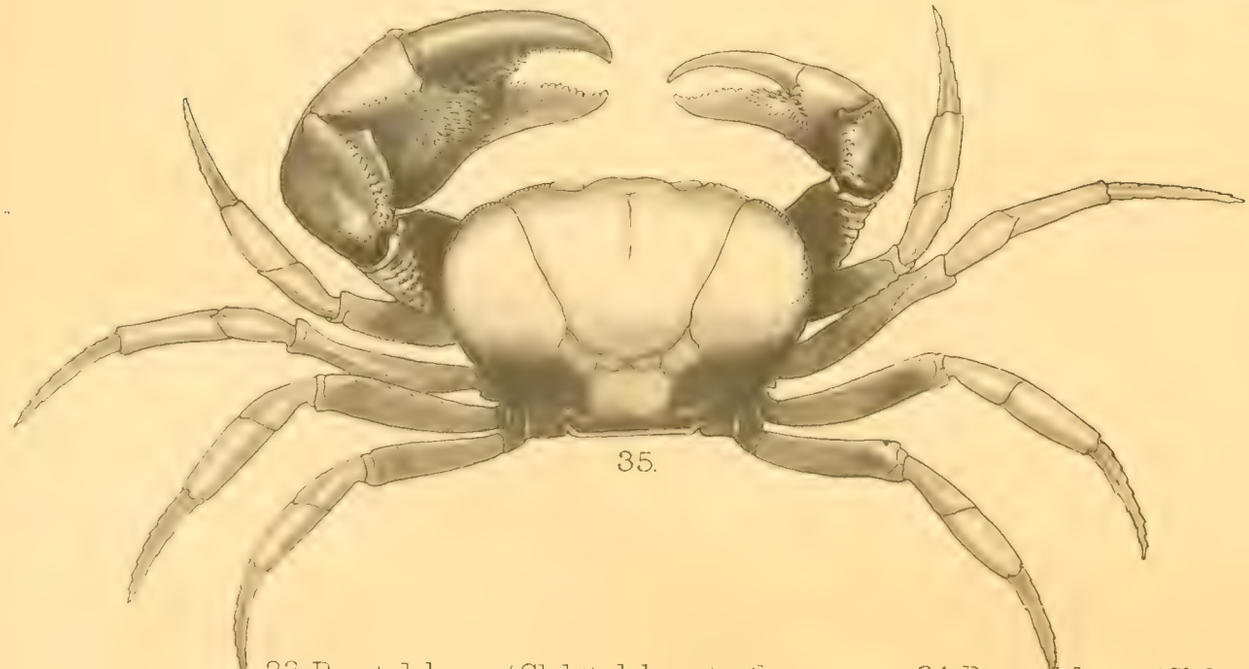


35a.

36c



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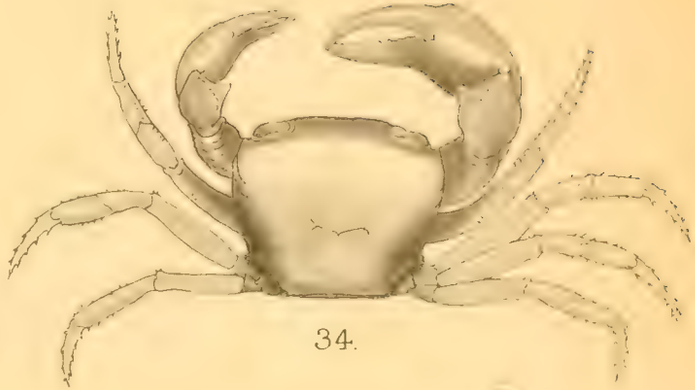
34a



34.

34b

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38

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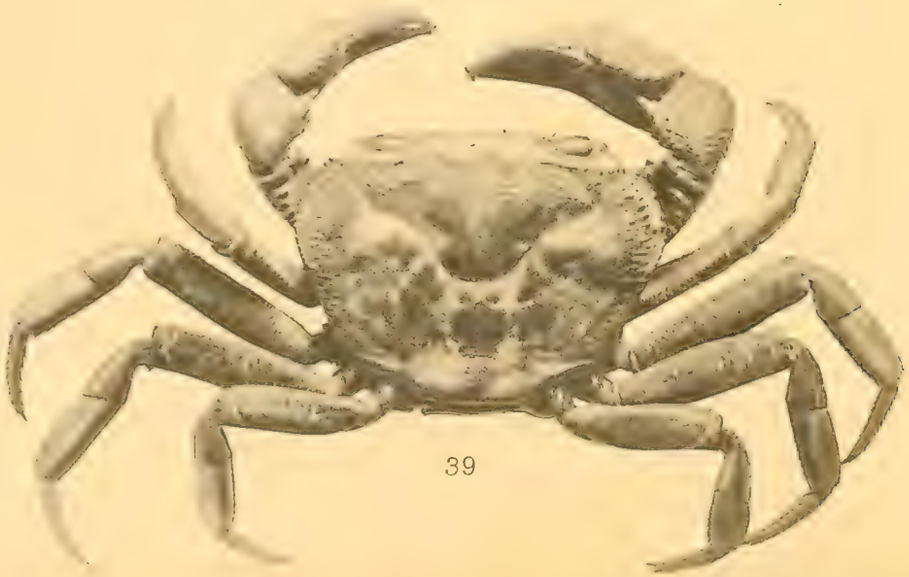

39

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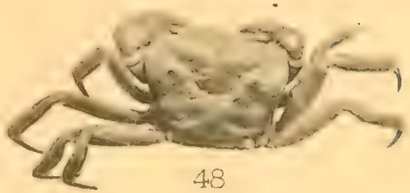
37. Potamon fluviatile, var. ibericum. 38. Potamon koolooense. 39. Potamon atkinsonianum.



46 Potamon manii. 47 Potamon thugatense. 48. Potamon (Potamiscus) sikkimense. 49 Potamon (Acanthotelphusa) dayanum. 50. Potamon (Acanthotelphusa) wood-masoni. 51 Potamon (Acanthotelphusa) feæ. 52. Potamon (Acanthotelphusa) martensi

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54 Paratelphusa sinensis. 55 Paratelphusa (Barytelphusa) guerini. 56 Paratelphusa (Paratelphusa) pulvinata. 57 Paratelphusa (Paratelphusa) pantaleoni. 58 Paratelphusa (Paratelphusa) hydrodromus. 59 Paratelphusa (Paratelphusa) jacquemontii.

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60 Paratelphusa (Oziotelphusa) hydrodromus. 61. Paratelphusa (Oziotelphusa) bouvieri. 62. Paratelphusa (Phricotelphusa) callianira
63. Paratelphusa (Phricotelphusa) elegans. 64 Paratelphusa (Phricotelphusa) carinifera. 65. Paratelphusa (Liotelphusa) laevis.

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28. Paratelphusa (Liotelphusa) lævis, var. quadrata. 43. Potamon edwardsi. 67. Potamon andersonianum, var. asperatum.
68. Potamon andersonianum, var. manipurense 69. Potamon andersonianum, var. tritum.
70. Potamon pealianum, var. antennarium. 71. Paratelphusa (Barytelphusa) guerini, var. planata.

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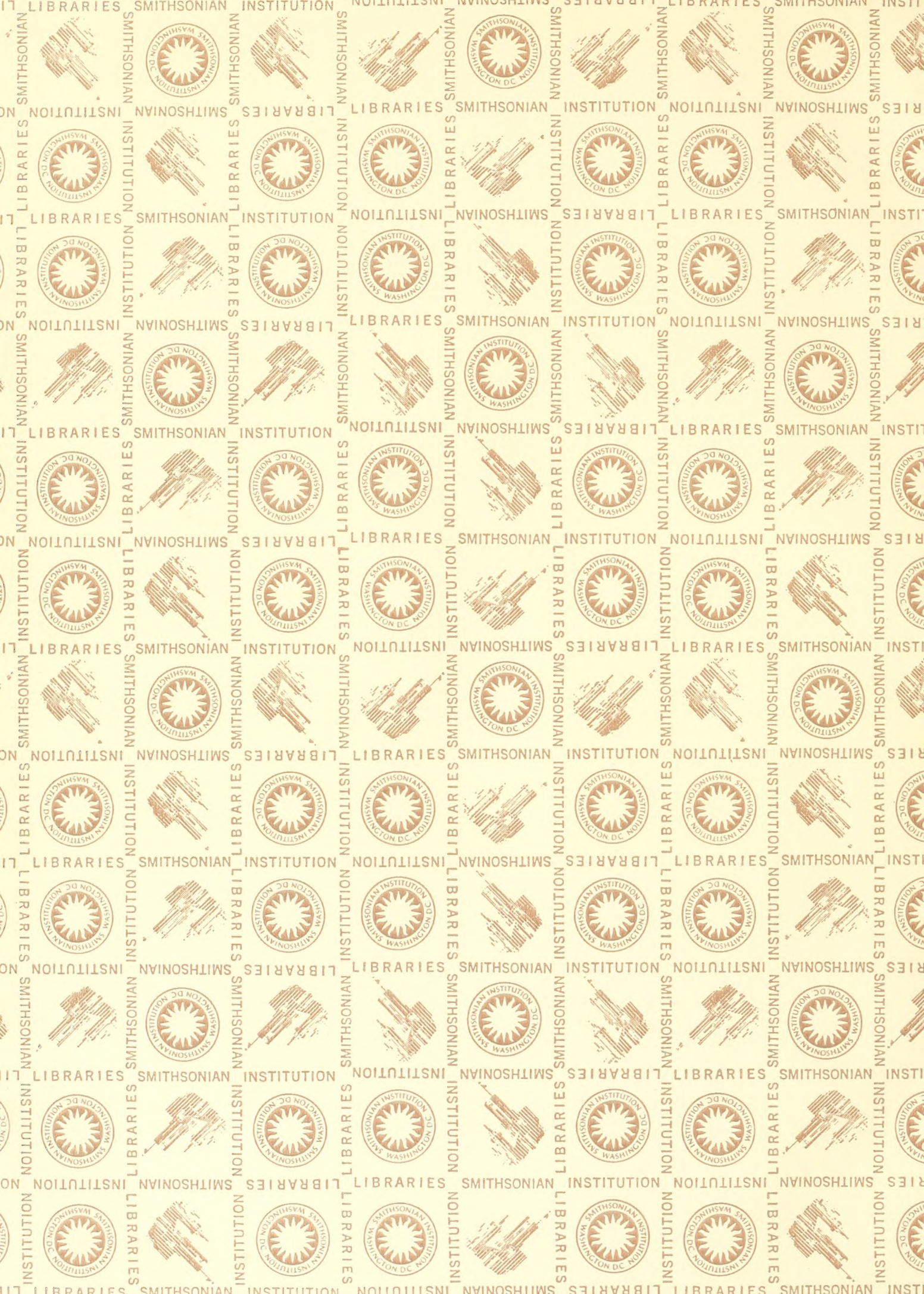
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